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Maintenance of Treatment Effects from Cognitive-Behavioral Therapy and Parent Training on Family Functioning and Girls' Depressive Symptoms

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Maintenance of Treatment Effects from Cognitive-Behavioral Therapy and Parent Training on Family Functioning and Girls' Depressive Symptoms

by

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Dissertation

Presented to the Faculty of the Graduate School of

the University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

August 2011

DEDICATION

"Time is the one immaterial object which we cannot influence –

neither speed up nor slow down, add to nor diminish."

-Maya Angelou

While it is impossible to affect the passage of time, there are certainly ways to improve people's experiences as time progresses. I know this first-hand from my wonderful family members, mentors, and friends, who constantly support me and help make each experience I encounter that much more fulfilling. I hold genuine appreciation for those in my past, present, and future, who have and will influence who I am in some special way. This dissertation is dedicated to all of you. I plan to continue conducting research and finding methods for improving the experiences of children and families during the passage of time. After all, it is time that opens the door to countless future possibilities.

ACKNOWLEDGMENTS

I am grateful to all of my family members, mentors, and friends for their support, warmth, and kindness over the years. To my family and especially my parents, thank you for serving as my internal compass, always guiding me towards achieving greatness both professionally and personally while maintaining sincere gratitude for everyone who helps me along the way. To my mentors, thank you for your support, guidance, and encouragement. I have learned so much from all of you. I feel honored to be a part of the School Psychology Doctoral Training Program at the University of Texas at Austin and am thankful for the mentorship I have received from each of the exceptional faculty members. Words cannot express how appreciative I am of Dr. Deborah Tharinger, Dr. Kevin Stark, and Dr. Cindy Carlson for investing themselves in my training and contributing so much to my professional development. Thank you to all of my committee members for guiding me through each stage of this project with their individual areas of expertise and to everyone that worked on the ACTION project and made this dissertation possible. I would especially like to thank TK Nguyen and Dr. Lynn Monnat for their help with data management and Dr. Laura Stapleton, Dr. Nate Marti, and Dr. Keenan Pituch for their assistance with statistical analyses. Last but certainly not least, thank you to my amazing friends, who have been incredibly supportive throughout my graduate school experience.

Maintenance of Treatment Effects from Cognitive-Behavioral Therapy and Parent Training on Family Functioning and Girls' Depressive Symptoms

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The University of Texas at Austin, 2011

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Improving treatment for early adolescent girls with depression by understanding factors that promote the maintenance of treatment effects is an important area of research given the association of depression with functional impairment and negative future outcomes. The effectiveness of CBT for treating depressed youth in the short-term has been well-established. However, limited research exists on the impact of CBT beyond one year post-treatment and on factors that enhance treatment maintenance for children and adolescents with depression. An intervention strategy that may yield the maintenance of treatment effects is the inclusion of primary caregivers. However, there is presently insufficient evidence to ascertain whether including primary caregivers in girls' depression treatment produces additional benefits because they have rarely been incorporated into clinical trials of depression treatment for youth. This approach warrants study since families of depressed youngsters are often characterized by disturbances in family functioning and because aspects of the family environment are related to the development and maintenance of depressive disorders in youth.

The current study addressed gaps in the existing literature about the maintenance of treatment effects for girls with depression by examining the impact of a parent training (PT) component added to a school-based, group-administered CBT intervention on girls' depressive symptoms and key areas of family functioning (i.e., conflict, cohesion, communication, and family sociability). Participants included 9- to 14-year-old girls with a depressive disorder, one primary caregiver for each girl who completed measures, and caregivers in the parental treatment component. Girls were randomly assigned to a CBT, CBT+PT, or minimal contact control condition. Ratings of girls' depressive symptoms and the family functioning variables were obtained from girls and primary caregivers at pre-treatment, post-treatment, and annually for up to four years following treatment.

Results from growth curve modeling using hierarchical linear models indicated no significant differences in rate of change of girls' depressive symptoms over time depending on whether they were in the CBT or CBT+PT condition. However, subsequent analyses revealed two significant factors associated with treatment maintenance: child attendance at CBT meetings and parental attendance at PT meetings. Specifically, higher rates of child and parental attendance were generally predictive of a sustained decline in girls' depressive symptoms over time. In addition, findings supported the positive impact of CBT with PT on aspects of the family environment from pre- to post-treatment, but not from post-treatment through the four years of follow-up assessment. Implications, limitations, and recommendations for further areas of research are discussed.

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CHAPTER 1

Introduction

Depression in youth is a serious public health concern that requires the attention of researchers, clinicians, school personnel, and families. Depressed children and adolescents often experience significant impairment in school, peer, and family functioning (Garber & Horowitz, 2002). In addition, depressed youngsters are at increased risk of future school dropout, unplanned pregnancy, substance abuse, bipolar disorder, and suicide (Birmaher et al., 1996; Waslick, Kandel, & Kakouros, 2002). Growing evidence indicates that depression is a chronic and recurrent disorder (Keller, 2003). Rates of depressive symptoms and disorders in prepubescent boys are equal to if not higher than that of prepubescent girls (Anderson, Williams, McGee, & Silva, 1987; Nolen-Hoeksema, Girgus, & Seligman, 1992). However, from mid-adolescence through adulthood, the incidence of depression (both subclinical and clinical) in females compared to males becomes two or three to one (Compas, Ey, & Grant, 1993; Weissman & Klerman, 1977). The dramatic increase in rates of depression in girls relative to boys occurs between the ages of 13 and 15 (Petersen, Sarigiani, & Kennedy, 1991; Wichstrom, 1999). The rise in rates of depression in girls during early adolescence, coupled with the debilitating consequences of depression among youngsters, suggests that effective treatment for girls with depression is highly needed and that initiation of treatment should take place around the start of puberty. Due to the recurrent course of depression, treatment for depression necessitates a focus on the maintenance of treatment effects in addition to an emphasis on acute symptom reduction.

Accurate assessment of depression is vital to the identification and diagnosis of girls with specific depressive disorders. The classification system for depressive disorders presented in the *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision* guides assessment and diagnosis of depressive symptoms and disorders in youth. The best practice approach to assessment of depression involves the use of multiple raters and various measurement methods (Fristad, Emery & Beck, 1997). A "multiple stage strategy" is recommended for identifying and diagnosing depressive disorders during large scale screenings of the general population (Kendall, Cantwell, & Kazdin, 1989). This assessment approach involves first using a self-report rating scale as a screening device to identify people who seem to be experiencing a clinically significant level of depression. The Children's Depression Inventory (CDI; Kovacs, 1981) is the most commonly used rating scale for depression in youth (Timbremont, Braet, & Dreessen, 2004). Individuals who exceed a cutoff score on a rating scale, such as the CDI, are selected to complete a second administration of a self-report rating scale to further assess the presence of depressive symptomatology. Although Kendall and colleagues recommend a second administration of the self-report rating scale, substituting this measure for a concise diagnostic interview is possible, as both methods are brief and aid in the identification of individuals who appear to be experiencing a depressive disorder. The Diagnostic and Statistical Manual Brief Symptom Interview for Depression (DSM Interview; Stark & Sander, 2002) is a relatively short interview that can be administered for this purpose. Those who continue to present with a clinically significant level of depressive symptoms on the second administration of a self-report rating scale or

on a brief diagnostic interview then undergo a more time-consuming and accurate diagnostic interview. Semi-structured interviews are considered the best practice approach to assessment, for they are systematic and cover the crucial areas of psychopathology, psychosocial functioning, and family history, which are important for diagnosing mental illnesses, while also allowing for flexibility and clinical judgment (Klein, Dougherty, & Olino, 2005). The Schedule for Affective Disorders and Schizophrenia in School Age Children (K-SADS; Puig-Antich & Chambers, 1978) is the most widely used semi-structured diagnostic interview (Klein et al.). After girls receive a depressive disorder diagnosis using a multiple stage strategy with various methods, they should begin treatment to remediate their depressive symptomatology.

Treatment approaches commonly utilized to treat children and adolescents with depressive disorders are pharmacological agents, psychosocial interventions, or a combination of the two. The safety of pharmacological agents for treating depression in youth is controversial (Hammad, Laugren, & Racoosin, 2006). Psychosocial interventions are a viable alternative, as they have not been found to pose as many risks to children and adolescents as pharmacological agents. To maximize the effectiveness of treating depression in girls, evidence-based treatment approaches guided by theory should be employed. Cognitive-behavioral therapy (CBT) has been the most extensively studied psychosocial approach to treating child and adolescent depressive disorders (Varley, 2006).

CBT can be delivered in individual or group format, with each offering unique advantages. The individual format provides the therapist with more flexibility to select

and tailor in session techniques to the client's presenting concerns (Lewinsohn & Clarke, 1999) and allows for additional time that can be devoted to addressing a client's particular needs since time is not divided among group members. The group format permits simultaneous treatment of multiple youngsters, which is both time-efficient and cost-effective. Additional benefits of a group format include opportunities for social facilitation, peer feedback, peer support, and practice using skills with group members (Brown & Lewinsohn, 1984). While both formats have distinct advantages, administering CBT in a group format seems more conducive to the provision of depression treatment in community settings because it allows for simultaneous treatment of several youth.

Previous research demonstrates that treatment effects on youth's depressive symptoms resulting from CBT last during the initial months after treatment, but often are not maintained beyond one year following treatment (Weisz, McCarty, & Valeri, 2006). However, there are a limited number of studies that include follow-up assessments, especially beyond one year post-treatment. The randomized controlled trials of psychotherapy and pharmacotherapy for children and adolescents with depressive disorders that incorporated follow-up evaluations suggest that 25% to 60% of treated participants experience the re-emergence of depressive symptoms within 6 months to 2 years post-treatment (Birmaher et al., 2000; Emslie et al., 1998; TADS Team, 2009). These findings indicate that new intervention strategies are needed to sustain long-term reductions in depressive symptomatology for youth (Emslie, 2008). To more clearly understand the maintenance of treatment effects, additional studies of CBT interventions for youngsters that include follow-up assessment at least one year post-treatment are

warranted. In addition, these studies should involve treatment approaches that have the potential to promote long-term depressive symptom reduction.

Understanding the maintenance of treatment effects from depression interventions for children and adolescents is an important area of research, considering the often recurrent course of depression and the steep social, emotional, and financial costs of depressive episodes for youth and families. A variety of approaches to relapse and recurrence prevention for depression currently exists and includes continuation of acute pharmacotherapy treatment after the disappearance of depressive symptoms, continuation treatment with booster sessions, and the design of depression interventions to incorporate factors known to enhance the maintenance of treatment effects (Simons, Rohde, Kennard, & Robins, 2005). However, research on the maintenance of treatment effects from depression interventions for youth is currently limited, as the majority of research on relapse and recurrence prevention for depression has focused on adult populations. There is an apparent need for additional research clarifying mechanisms that decrease the risk of youngsters experiencing subsequent depressive episodes following acute treatment for depression (Hollon, DeRubeis, & Seligman, 1992).

While continuation treatment with antidepressant medication may be a useful direction for maintaining treatment effects among children and adolescents, this approach requires further investigation. By identifying factors associated with a sustained reduction in depressive symptoms, researchers and clinicians can incorporate these factors into depression interventions for youth to achieve lasting treatment gains. Extracting from research primarily with adults and also with adolescents, potential factors include

continuation treatment with booster sessions, emphasis on treatment fidelity, modification of an individual's negative explanatory style, use of a skills training perspective, and practice applying skills to potential future problems (Hollon et al., 1990; Hollon et al., 1992; Simons et al., 2005). Nevertheless, additional research is required to evaluate whether these factors also influence the maintenance of treatment effects from depression interventions for children and adolescents. Therefore, these factors should be integrated into the design of depression treatments for youth and evaluated through randomized clinical trials. A factor that may be related to treatment maintenance for depressed youngsters, but that has not yet been adequately studied is the incorporation of primary caregivers into children's depression treatment (Sander & McCarty, 2005).

Involving primary caregivers in CBT treatment for depressed girls may help produce sustained treatment effects because the family environment is a vital context in which girls develop. While peers play a more significant role in boys' adjustment, the family is highly influential in girls' adjustment (Kavanagh & Hops, 1994). Exploring the role of the family in the development and maintenance of depression in girls seems paramount to comprehensively understanding depression and response to treatment in this population. Common characteristics of families of depressed youth, which are associated with depression, include high conflict, low cohesion, communication difficulties, and reduced family sociability (Messer & Gross, 1995; Puig-Antich, Lukens, Davies, Goetz, Brennan-Quattrock, & Todak, 1985; Puig-Antich et al., 1993; Stark, Humphrey, Crook, & Lewis, 1990; Stark, Humphrey, Laurent, Livingston, & Christopher, 1993).

Assessing aspects of family functioning, in which disturbances are typical among families of depressed youth (i.e., conflict, cohesion, communication, and family sociability), is crucial to elucidating the development and maintenance of depressive disorders in girls. For the assessment of family functioning, it is important to use a multi-rater approach, as convergent validity of the perspectives of various informants from a family when rating family functioning variables is generally fairly weak (Alexander, Johnson, & Carter, 1984; Cole & Jordan, 1989; Friedman, Utada, & Morrissey, 1987; Olson, Portner, & Lavee, 1985) and because depressed children's responses may be negatively influenced by their depressive state (Sheeber & Sorensen, 1998). Family assessment should begin at the whole family level (Snyder, Cavell, Heffer, & Mangrum, 1995). Selection of a particular method and measure for family assessment requires congruency with the purpose of the assessment (Grotevant, 1989). The main objective of assessing family functioning in research is to reliably quantify abstract theoretical constructs of interest to test hypotheses (Carlson, 2003). Self-report questionnaires are often used in research because they are brief and the procedures for administration are clearly specified, which eases replicated questionnaire administration. Although numerous self-report measures have been created to assess the family context, many of these measures were designed for use with adults or adolescents (Schumm, 2001). Researchers interested in obtaining a youth's perspective of the family environment are faced with the challenge of finding a psychometrically sound self-report questionnaire, which measures a variety of family functioning variables and is appropriate for use with children. The Self-Report Measure of Family Functioning (SMRFF; Bloom, 1985) is a

self-rating scale designed for adults and includes subscales for key aspects of the family environment (e.g., Conflict, Cohesion, Communication, and Family Sociability). The SMRFF was developed based on a factor analysis of several prominent measures of family functioning. This measure has been revised several times to increase its accessibility to youth.

Considering that family functioning variables are related to the development and maintenance of child and adolescent depression and families of depressed youth are often characterized by disturbances in family functioning, it seems logical that primary caregivers be incorporated into their child's depression treatment and that parental involvement be aimed at assuaging disturbances in family functioning. Yet, adding a parental component to treatment can be time consuming and costly. Therefore, knowing whether depression treatment for girls that includes primary caregivers results in maintenance of treatment effects beyond what is accomplished without the inclusion of primary caregivers is critical. Presently, there is insufficient evidence to ascertain whether the incorporation of primary caregivers into girls' depression treatment has added benefits because primary caregivers have rarely been incorporated into clinical research studies of depression treatment for youngsters (Sander & McCarty, 2005). In a recent meta-analysis of clinical trials of treatment for depression in youth, only 32% of the studies included any level of parental involvement (see Sander & McCarty, for review).

To advance research on the impact of parental involvement in the treatment of depressed girls, clinical trials of depression interventions that incorporate primary

caregivers are needed. These studies should include the collection of longitudinal data with follow-up assessments at least one year post-treatment because of the episodic nature of depression (Weisz et al., 2006) and because the effect of parental involvement on maintenance of depressive symptom reduction may become more pronounced over time when compared to depression treatments that do not include a parental component. In the assessment of change over time using longitudinal data, growth curve modeling with the hierarchical linear models (HLM) technique has numerous advantages over more traditional methods (Bryk & Raudenbush, 1987; Rogosa, Brandt, & Zimowski, 1982; Rogosa & Willett, 1985). For instance, growth curve modeling is a flexible approach that allows for a different number of observations for each participant, which commonly occurs due to attrition during the collection of longitudinal data in field experiments. The collection of longitudinal data also permits the evaluation of potential mechanisms by which treatment effects are maintained.

Since prior studies often have not involved primary caregivers in their youngsters' treatment, there is a gap in the literature informing underlying pathways that explain reduced depressive symptoms in youth resulting from the incorporation of primary caregivers into treatment. Previous research posits that increased conflict and decreased cohesion, communication, and family sociability are associated with the development and maintenance of child and adolescent depression. Therefore, positive changes in these family functioning variables are potential mechanisms that could account for maintenance in depressive symptom reduction for girls whose primary caregivers have

been included in treatment. Mediational models can be used to formally test these potential underlying mechanisms.

The purpose of the current study is to advance the literature on the treatment of depression in early adolescent girls by addressing gaps related to the maintenance of treatment effects and the impact of parental involvement in treatment. Specifically, this study determined whether adding a parent training (PT) component to a school-based, group-administered CBT intervention for early adolescent girls with a depressive disorder produced a sustained reduction in girls' depressive symptoms beyond that gained by a CBT intervention alone. In addition, this study evaluated the effect of CBT with and without PT on the family functioning variables of conflict, cohesion, communication, and family sociability. Finally, these family functioning variables were assessed to determine whether they served as mechanisms by which the PT component yielded the maintenance of reduced depressive symptoms in girls.

To meet the objectives of the current study, the sample was drawn from a larger depression intervention study. Participants included 9- to 14-year-old girls with a depressive disorder, one primary caregiver for each girl who completed measures for the study, and the caregivers involved in the parental component of treatment. The girls were randomly assigned to a CBT only condition, a CBT plus PT condition, or a minimal contact control condition. Ratings of girls' depressive symptoms and the family functioning variables (i.e., conflict, cohesion, communication, and family sociability) were obtained from girls and one of their primary caregivers at pre-treatment, post-treatment, and annually for up to four years following treatment. Because attrition is

inevitable in the collection of longitudinal data, growth curve modeling was used to measure change in depressive symptoms and the specified family functioning variables from post-treatment through the follow-up time points. Mediational model testing was employed to determine whether improvements in the family functioning variables of conflict, cohesion, communication, and family sociability were mechanisms by which parental involvement in treatment resulted in a sustained reduction in girls' depressive symptoms. Findings from this study expand the knowledge base about treatment of depression in girls and can be used to inform future depression interventions.

CHAPTER 2

Review of the Literature

Depression in Youth

Depression in youth is a prevalent, debilitating disorder with various negative correlates and outcomes. Depressed children and adolescents typically experience significant impairment in school, peer, and family functioning (Garber & Horowitz, 2002). In the school domain, depressed youth tend to display academic underachievement, school attendance problems, and school failure (Hammen, Rudolph, Weisz, Rao, & Burge, 1999). Depressed youngsters also possess considerable social skills deficits and commonly experience peer difficulties (Rudolph, Hammen, & Burge, 1994). Families of depressed children and adolescents often are marked by high levels of conflict and criticism as well as poor attachment (Sheeber, Hops, & Davis, 2001). Furthermore, depressed youth are at heightened risk of future school dropout, unplanned pregnancy, substance abuse, bipolar disorder, and suicide (Birmaher et al., 1996, Waslick et al., 2002). Thus, depression is a common disorder among children and adolescents and is associated with impaired functioning as well as negative developmental trajectories.

Patterns of depressive symptoms may vary over the course of development based on biological, cognitive, social, and emotional changes that occur (Weiss & Garber, 2003). Nonetheless, there is recognition of the need for a classification system for depressive disorders across the life span in order to enhance consistency of diagnosis and to facilitate treatment. The *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision* (DSM-IV-TR; American Psychiatric Association, 2000) is a widely

used classification system that delineates diagnostic criteria for specific mental illnesses. The DSM-IV TR divides unipolar depression into three main disorders: Major Depressive Disorder (MDD), Dysthymic Disorder (DD), and Depressive Disorder Not Otherwise Specified (DDNOS). MDD is an episodic disorder and is the most severe of the three diagnoses. DD is a chronic, low grade form of depression. DDNOS is included in the classification system to account for the presence of depressive symptoms that do not meet criteria for MDD or DD, but that still constitute significant impairment. Specific descriptions of the diagnostic criteria for each of these depressive disorders are presented in Appendix A.

Epidemiology

Many epidemiological studies have documented the occurrence of depression in children and adolescents. However, rates of depression in these studies have varied depending on measurement instruments, method of diagnosis, and populations sampled (Poznanski & Mokros, 1994). The risk for depression rises from childhood to adolescence (Birmaher et al., 1996). The point prevalence of MDD in children is approximately 2%, while in adolescents it is between 4% and 8% (Fleming & Offord, 1990; Lewinsohn, Clarke, Seeley, & Rohde, 1994). The point prevalence of DD in children is between 0.6% and 1.7% and in adolescents is between 15% and 20% (Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993).

Course of Depression

Growing evidence indicates that depression is a chronic and recurrent disorder (Keller, 2003). Even with successful treatment and remission of depression, relapse

(defined as re-emergence of depressive symptoms from the same episode) and recurrence (defined as development of depressive symptoms following a period of sustained recovery) are common (Simons et al., 2005). Research indicates that early onset of depressive disorders is predictive of a more severe course of depression (Harrington, 1996; Lewinsohn, Rohde, Klein, & Seeley, 1999).

The average age of onset for MDD is 14.9 years old in a community sample (Lewinsohn et al., 1994). The median length of a major depressive episode is one to two months in youth from community samples and seven to nine months in clinic-referred youth (American Academy of Child and Adolescent Psychiatry [AACAP], 1998; Lewinsohn et al., 1994). By one to two years after remission from a major depressive episode, 20% to 60% of youth experience another depressive episode (AACAP). By 5 years after remission, 70% of youth experience an additional depressive episode (AACAP).

DD has a protracted course with a mean duration of three to four years for youth from community and clinic samples (Kovacs, Akiskal, Gastonis, & Parrone, 1994). Youngsters with DD are at increased risk for the development of MDD. Kovacs and colleagues found that 76% of youth with DD later developed MDD, and 69% of youth with DD as the initial emergent mood disorder subsequently developed double depression, which involves a diagnosis of MDD with underlying DD (Kovacs et al.). Youth with double depression have a less promising course with shorter periods between major depressive episodes (Kovacs et al.).

Gender Difference in Rates of Depression

Rates of depressive symptoms and disorders in prepubescent boys are equal to if not higher than that of prepubescent girls (Anderson et al., 1987; Nolen-Hoeksema et al., 1992). However, from mid-adolescence through adulthood, the incidence of depression (both subclinical and clinical) in females compared to males becomes two or three to one (Compas et al., 1993; Weissman & Klerman, 1977). The dramatic increase in rates of depression in girls relative to boys occurs between the ages of 13 and 15 (Petersen et al., 1991; Wichstrom, 1999).

Summary

Depression in youth is currently a serious public health concern requiring the attention of researchers, clinicians, school personnel, and families because of its prevalence and its association with functional impairment and negative developmental trajectories. Due to the recurrent course of depression, treatment for depression necessitates a focus on maintenance of treatment effects in addition to an emphasis on acute symptom reduction. The evident gender difference in the emergence of depression suggests that effective treatment for girls with depression is highly needed and that initiation of treatment should take place around the start of puberty. The classification of depressive disorders according to DSM-IV TR criteria provides a consistent method for the assessment and diagnosis of girls with depression.

Assessment of Depression

Accurate assessment of depression is important for the identification and diagnosis of girls with specific depressive disorders. The best practice approach to

assessment of depression involves the use of multiple raters and several measurement methods (Fristad et al., 1997). During large scale screenings of the general population, a "multiple stage strategy" for assessment of depression is recommended as an identification and diagnostic procedure (Kendall et al., 1989). This assessment approach entails first using a self-report rating scale as a screening device to identify people who may be experiencing a clinically significant level of depression. Individuals who exceed a cutoff score on the rating scale are then selected for a second administration of the self-report rating scale. Although Kendall and colleagues recommend a second administration of the self-report rating scale, it is possible to substitute this measure for a relatively short diagnostic interview, such as the Diagnostic and Statistical Manual Brief Symptom Interview for Depression (DSM Interview), as both methods are brief and aid in the identification of individuals who appear to be experiencing a depressive disorder. Those who exceed a cutoff score on the second self-report rating scale or who present with a clinically significant level of depressive symptoms on a concise diagnostic interview are then selected for a more time-consuming and accurate diagnostic interview. This "multiple stage strategy" is time efficient and cost effective, as it reduces the number of false positives, or individuals who seem to be suffering from a depressive disorder but who in actuality are not, prior to engaging in a lengthy diagnostic interview.

For screening purposes, the Children's Depression Inventory (CDI) is the most commonly used rating scale to assess depression in children and adolescents (Timbremont et al., 2004). The CDI has demonstrated adequate reliability in numerous studies (Finch, Saylor, Edwards, & McIntosh, 1987; Fundudis et al.,1991; Kovacs, 1992).

The CDI has fairly good convergent validity, as scores on the CDI correlate well with scores on other self-report rating scales of depression (see Brooks & Kutcher, 2001, for review). However, the discriminant validity of the CDI is dubious, for scores on the CDI are nearly as highly correlated with measures of anxiety as they are with measures of depression (Myers & Winters, 2002). While the CDI provides information about the presence and severity of depressive symptoms, it cannot be used in isolation to determine a psychiatric diagnosis (Sitarenios & Kovacs, 1999). Therefore, the CDI is useful as a screening tool and should be followed with a diagnostic interview for individuals who appear to be experiencing clinically elevated depressive symptomatology.

Diagnostic interviews can be unstructured, fully structured, or semi-structured. During unstructured clinical interviews, clinicians often do not ask about important features of psychopathology if these features are incongruent with their initial diagnostic impression (Angold & Fisher, 1999). Structured interviews are more comprehensive than unstructured interviews and likely have increased inter-rater reliability compared to unstructured clinical interviews. A weakness of structured interviews is that they do not incorporate flexibility for clinicians to use their professional judgment to gather additional information, which may have diagnostic utility. In fact, Lewczyk and colleagues (2003) found that there was poor diagnostic agreement between structured interviews and clinicians in diagnosing 240 youth between the ages of 6 and 18 years old. Semi-structured interviews are recommended as the best practice approach to assessment because they are systematic and cover key areas of psychopathology, psychosocial

functioning, and family history, which are important for diagnosing mental illnesses, while also allowing for flexibility and clinical judgment (Klein et al., 2005).

The Schedule for Affective Disorders and Schizophrenia in School Age Children (K-SADS; Puig-Antich & Chambers, 1978) is the most widely used semi-structured diagnostic interview (Klein et al., 2005). The K-SADS is the least structured of the semi-structured diagnostic interviews and therefore requires a sufficient amount of clinical training to achieve adequate inter-rater reliability prior to administration by a clinician. There are numerous versions of the K-SADS that vary in whether they measure current as well as lifetime psychopathology and whether they yield dimensional measures of symptom severity (see Ambrosini, 2000, for comparisons of the versions). Selecting an appropriate version of the K-SADS should depend on the particular information the clinician desires to glean from the interview.

In summary, to enhance accurate identification and diagnosis of depression in girls during large scale screenings of the general population, a multiple stage strategy with various methods is recommended. Specifically, a self-report rating scale, such as the CDI, is first used to identify girls who seem to be suffering from depression. Then, girls with clinically elevated scores on the rating scale undergo an additional administration of the rating scale or a brief semi-structured diagnostic interview, such as the DSM Interview, to further identify girls who are suspected of having a depressive disorder. Finally, a more comprehensive semi-structured diagnostic interview, such as the K-SADS, is utilized to diagnose girls with depressive disorders, so they can begin appropriate treatment.

Treatment for Depression

The treatment approaches often employed to treat youth suffering from depression are pharmacological agents, psychosocial interventions, or a combination of the two. The class of antidepressant medication commonly prescribed to children and adolescents is the selective serotonin reuptake inhibitor (SSRI), which has proven efficacious for the treatment of depression in this population (Emslie et al., 2002). However, controversy exists about the use of SSRIs in treatment for youngsters with depression. Research demonstrates that taking an SSRI increases a youth's risk of suicide-related behavior and suicidal ideation as well as the development of a hypomanic or manic episode (Hammad et al., 2006). Additional research highlights that the benefits of SSRIs compared to placebo are far greater than the risks from suicidal ideation and self-harming behaviors, particularly in short-term trials with children and adolescents (Bridge et al., 2007). Future research is needed to identify factors that predict benefit and harm when using SSRIs to treat depression in youth. Fortunately, this type of research is currently underway and will advance knowledge about treatment for child and adolescent depression (Leckman & King, 2007).

Considering the ongoing controversy surrounding the safety of pharmacological agents in the treatment depression in youth, psychosocial interventions are a viable alternative, as psychosocial interventions have not been found to pose such risks to children and adolescents. To maximize the effectiveness of treating depression in girls, evidence-based psychosocial interventions guided by theory should be utilized. The most extensively studied psychosocial approach to treating child and adolescent depressive

disorders is cognitive-behavioral therapy [CBT] (Varley, 2006). CBT is based on behavioral and cognitive conceptualizations of depression and uses techniques from both theoretical perspectives (Beck, 1967; Lewinsohn, 1974). CBT is a problem-focused, time-limited method for treating depression that teaches coping skills, problem-solving, and cognitive restructuring with the goal of individuals eventually independently applying these techniques to their lives (Stark, 1990). Stark and colleagues (2006) have described the three key components of CBT (i.e., coping skills, problem-solving, and cognitive restructuring). Coping skills are techniques for enhancing mood when a youngster is experiencing an unfortunate situation that cannot be changed. Problem-solving is a strategy for developing a plan for altering an undesirable situation. Cognitive restructuring involves changing negatively distorted thinking to more positive and realistic thinking.

CBT can be delivered in individual or group format, with each offering unique benefits. The individual format provides the therapist with more flexibility to select and tailor in session techniques to the client's presenting concerns (Lewinsohn & Clarke, 1999) and allows for additional time that can be devoted to addressing a client's particular needs since time is not split between group members. The group format permits simultaneous treatment of multiple youngsters, which is both time-efficient and cost-effective. Additional benefits of a group format include opportunities for social facilitation, peer feedback, peer support, and practice using skills with group members (Brown & Lewinsohn, 1984). While both formats have distinct advantages, administering

CBT in a group format seems more conducive to the provision of depression treatment in community settings because it allows for simultaneous treatment of several youth.

In a meta-analysis, the estimated overall effect size for CBT with children and adolescents was 1.27 (Lewinsohn & Clarke, 1999). Specifically, 63% of patients from the meta-analysis experienced clinically significant improvements after undergoing CBT. While some researchers view the effect size found by Lewinsohn and Clarke as an overestimate (Weisz et al., 2006), additional meta-analyses have supported the finding that CBT is effective in treating depressive disorders in youth (Compton et al., 2004; Reinecke, Ryan, & DuBois, 1998). Although a limited amount of studies that include the collection of follow-up data exists especially beyond one year post-treatment, current research suggests that treatment effects on youth's depressive symptoms resulting from CBT last during the initial months following treatment, but often are not maintained beyond one year post-treatment (Weisz et al.). Findings from randomized controlled trials of psychotherapy and pharmacotherapy for children and adolescents with depressive disorders that incorporated follow-up evaluations suggest that 25% to 60% of treated participants experience the re-emergence of depressive symptoms within 6 months to 2 years post-treatment (Birmaher et al., 2000; Emslie et al., 1998; TADS Team, 2009). These findings indicate that new treatment approaches are needed to sustain long-term reductions in depressive symptomatology for youth (Emslie, 2008).

Research supporting the effectiveness of CBT for treating depression in youth indicates the utility of employing this treatment modality. Delivering CBT to girls in a group format in community settings seems beneficial because it allows for the

simultaneous treatment of multiple youth. To more clearly understand the maintenance of treatment effects, additional studies of CBT interventions for youngsters that include follow-up assessment at least one year post-treatment are warranted. In addition, these studies should involve new intervention strategies that have the potential to promote long-term depressive symptom reduction.

Maintenance of Treatment Effects

Understanding the maintenance of treatment effects from depression interventions for children and adolescents is an important area of research, considering the often recurrent course of depression and the immense social, emotional, and financial costs of depressive episodes for youth and families. Research on depression in children has lagged behind research on depression in adults, although strides have been made to close this gap (Shafii & Shafii, 1992). The majority of research on relapse and recurrence prevention for depression, to date, has focused on adult populations. This is a serious limitation that highlights the need for additional research clarifying mechanisms that decrease the risk of youngsters experiencing subsequent depressive episodes following acute treatment for depression (Hollon et al., 1992). Nonetheless, a review of the extant literature on this topic is a beneficial starting point for uncovering ways to maintain treatment effects for children and adolescents with depression. Risk factors for recurrence during adulthood include a high number of previous depressive episodes, elevated residual depressive symptomatology and psychopathology, and increased daily hassles (Bockting, Spinhoven, Koeter, Wouters, & Schene, 2006). There are a multitude of approaches to relapse and recurrence prevention for depression, which will be reviewed.

These approaches encompass continuation of acute pharmacotherapy treatment after the disappearance of depressive symptoms, continuation treatment with booster sessions, and the careful design of depression interventions to incorporate factors known to enhance the maintenance of treatment effects (Simons et al., 2005).

Continuation of Acute Pharmacotherapy Treatment

The American Psychiatric Association Clinical Practice Guidelines for adults recommend continuing antidepressant medication beyond the disappearance of depressive symptoms (Simons et al., 2005). The underlying rationale for this approach is to maintain ongoing symptom suppression. The continuation of acute pharmacotherapy treatment has begun to gain recognition in the treatment of depression for youth. According to the Practice Parameters for the Assessment and Treatment of Children with Depressive Disorders, continuation treatment with antidepressant medication after the acute phase may be useful, but selection of treatment during the continuation phase should be governed by variables, such as the individual's age and cognitive development; severity, chronicity, and type of depressive disorder; comorbid diagnoses; family psychiatric history; family and social environment; family and patient treatment preferences and expectations; cultural factors; and availability of expertise in pediatric pharmacotherapy (Birmaher, 1998). Of noteworthy importance, a blanket recommendation of long-term antidepressant medication treatment for youth is not currently indicated due to insufficient empirical evidence supporting this recommendation (Simons et al.).

Continuation Treatment with Booster Sessions

Continuation of less intensive treatment through booster sessions following symptom remission is an additional approach to preventing the recurrence of subsequent depressive episodes that has been explored in research with adolescents. This approach stems from the CBT framework, in which acquisition of skills and related changes in core beliefs and information processing are considered important mechanisms underlying treatment effects (Simons et al., 2005). An additionally beneficial emphasis within continuation treatment is on enhancing coping, especially related to preventing daily hassles or reducing the impact of daily hassles (Bockting, et al., 2006). By extending psychotherapy beyond symptom remission through occasional booster sessions, clients can continue to practice learned CBT skills, such as coping strategies, and maintain positive modifications to their core beliefs and information processing capabilities. Following acute treatment for depression, additional exposure to these therapeutic techniques through booster sessions is intended to increase the likelihood that individuals will continue utilizing acquired skills.

There have been inconsistent findings about the utility of booster sessions in preventing relapse for adolescents with depression. Support for booster sessions stems from an uncontrolled pilot study, in which the inclusion of monthly booster sessions following CBT for adolescents resulted in a decreased relapse rate (Kroll, Harrington, Jayson, Fraser, & Gowers, 1996). However, the addition of monthly booster sessions following treatment termination in another study with adolescents had no effect on recurrence of depression (Clarke, Rohde, Lewinsohn, Hops, & Seeley, 1999). Participants

in the latter study were randomized to either booster sessions or a control condition after treatment ended. Booster sessions that are designed as part of the treatment protocol from the onset may have more promising effects (Simons et al., 2005). In addition, some adolescents from the latter study chose not to attend booster sessions because they were reportedly "feeling better" and did not view the sessions as necessary. Therefore, when planning booster sessions, it is crucial to attend to the particular needs of those in remission. The content of interventions targeted at the maintenance of reduced depressive symptoms may require alterations from the focus of treatment during an acute symptom phase (Simons et al.).

Factors Related to Maintenance of Treatment Effects

By identifying factors associated with a sustained reduction in depressive symptoms, researchers and clinicians can incorporate these factors into depression interventions for youth to achieve lasting treatment gains. However, limited research currently exists about these factors for children and adolescents. Several factors that affect the maintenance of treatment effects for adults with depression have been identified and include emphasis on treatment fidelity, modification of an individual's negative explanatory style, use of a skills training perspective, and practice applying skills to potential future problems (Hollon et al., 1990; Hollon et al., 1992). Although these factors found for adults may provide valuable information about ways to achieve sustained treatment effects from depression interventions for youth, they should be considered with caution because they have not yet been established with child and adolescent populations.

Treatment fidelity, or the extent to which an intervention is implemented as intended by those who created the intervention, for cognitive therapy with adults has been found to predict avoidance of relapse (Hollon et al., 1992). Therefore, treatment programs that use cognitive therapy as the theoretical foundation to combat depressive symptoms should be delivered with attention to fidelity. One method for increasing fidelity to reduce the risk of experiencing additional depressive episodes is to use a manualized intervention.

An additional factor related to the maintenance of treatment effects for adults is the utilization of the therapeutic technique of modifying a person's negative explanatory style. A negative explanatory style, defined as a relatively stable tendency to generate depressotypic causal attributions, contributes to risk for depression (Petersen & Seligman, 1984). Explanatory style has been found to predict relapse following treatment termination (Hollon et al., 1992). To maintain treatment effects, depression interventions should strive to transform negative explanatory styles into increasingly positive and adaptive explanatory styles.

Therapy with adults is more likely to yield long-lasting treatment effects when a skills training approach is employed (Hollon et al., 1992). In other words, a primary objective of treatment should be for therapists to teach clients skills and strategies, which can be used to generate positive changes, as opposed to producing change for clients. One such strategy, called collaborative empiricism, involves individuals altering their behaviors to test the validity of existing beliefs (Beck, Rush, Shaw, & Emery, 1979). By teaching clients methods for modifying maladaptive cognitions that are applicable in a

wide array of situations, clients are able to continue implementing these strategies after treatment termination.

Another important issue associated with the maintenance of treatment effects in adults involves providing them with opportunities to practice applying learned therapeutic skills to present concerns and potential future problems (Hollon et al., 1992). Clients need ample time to practice skills they have learned during therapy sessions to increase the likelihood that they will apply these skills beyond treatment. An implication is that length of treatment for depression should be designed to allow time for people to practice therapeutic skills. Furthermore, treatment should occur regularly to prevent clients from forgetting learned skills, as extended breaks between therapy sessions may reduce the maintenance of treatment effects (Vostanis, Feehan, Grattan, & Bickerton, 1996).

A factor that may be related to the maintenance of treatment effects for depressed youth, but that has not yet been adequately studied is the incorporation of primary caregivers into their child's depression treatment (Sander & McCarty, 2005). Even if a treatment program is effective in reducing a child's depressive symptoms, upon returning to an unhealthy family environment, that child may experience a rise in depressive symptoms. If a child's family environment is healthy, but primary caregivers are unaware of skills their child learned during therapy and of how to support their child's application of those skills, it may be increasingly difficult for a youngster to experience a sustained reduction in depressive symptoms. Thus, studying whether the inclusion of primary

caregivers in depression treatment for youngsters is a factor that yields a sustained reduction in youth's depressive symptoms is an important area for future research.

Summary

Understanding the maintenance of treatment effects from depression interventions for children and adolescents is critical, considering the often recurrent course of depression and the steep social, emotional, and financial costs of depressive episodes for youth and families. A variety of approaches to relapse and recurrence prevention for depression currently exists and includes continuation of acute pharmacotherapy treatment after the disappearance of depressive symptoms, continuation treatment with booster sessions, and the careful design of depression interventions to incorporate factors known to enhance the maintenance of treatment effects (Simons et al., 2005). However, research on the maintenance of treatment effects from depression interventions for youth is currently limited, as the majority of research on relapse and recurrence prevention for depression has focused on adult populations. There is an apparent need for additional research clarifying mechanisms that decrease the risk of youngsters experiencing subsequent depressive episodes following acute treatment for depression (Hollon et al., 1992).

While continuation treatment with antidepressant medication may be a useful direction for maintaining treatment effects among children and adolescents, this approach requires further investigation. By identifying factors associated with a sustained reduction in depressive symptoms, researchers and clinicians can incorporate these factors into depression interventions for youth to achieve lasting treatment gains. Extracting from

research primarily with adults and also with adolescents, potential factors include continuation treatment with booster sessions, emphasis on treatment fidelity, modification of an individual's negative explanatory style, use of a skills training perspective, and practice applying skills to potential future problems (Hollon et al., 1990; Hollon et al., 1992; Simons et al., 2005). Nevertheless, additional research is required to investigate whether these factors also influence the maintenance of treatment gains from depression interventions for children as well as adolescents. Therefore, these factors should be integrated into the design of depression treatments for youth and evaluated through randomized clinical trials. A factor that may be related to the maintenance of treatment effects for depressed youngsters, but that has not yet been adequately studied is the incorporation of primary caregivers into their child's depression treatment (Sander & McCarty, 2005).

Family Functioning and Depression

With knowledge of depression as a prevalent and debilitating disorder among children and adolescents, there is heightened interest in understanding the development and maintenance of depression in youth. The social context has been a focus for elucidating depressive disorders in youngsters, since depressed children often experience increased interpersonal sensitivity (Rudolph, Hammen, & Burge, 1997). The family environment, in particular, has been studied extensively because it is one of the most salient contexts of childhood development. The family environment was found to predict psychosocial competence over three years in depressed children and adolescents, with higher levels of stress within the family associated with increased negative outcomes

(McCauley et al., 1993). Furthermore, the family seems to play a different role in the psychosocial development of boys and girls. The family is highly influential in adolescent girls' adjustment, whereas peers play a more significant role in boys' adjustment (Kavanagh & Hops, 1994). Exploring the role of the family in the development and maintenance of depression in girls seems paramount to comprehensively understanding depression in this population.

While a portion of the family's contribution to depression is explained by genetic factors (Goldberg, 2006), a substantial amount of variance is not attributable to genetic mechanisms (Eley, Deater-Deckard, Fombonne, Fulker, & Plomin, 1998; Fendrich, Warner, & Weissman, 1990; Strober, 1995). To account for the unexplained contribution of family to the development and maintenance of depression, characteristics of the family environment, such as family interactional processes, have been studied. Negative family interactions are considered fairly stable over time (Sheeber et al., 2001). For instance, mothers' perceptions of adverse family relationships often remain unchanged even after their children no longer meet criteria for a depressive disorder (Puig-Antich et al., 1985). Negative family interactions also increase youngsters' vulnerability to depression (Sheeber et al.). Common characteristics and interactional processes of families of depressed youth, which are related to the development and maintenance of depression, include high conflict, low cohesion, communication difficulties, reduced family sociability, and negative parenting styles (Messer & Gross, 1995; Normura, Wickramaratne, Warner, & Weissman, 2002; Puig-Antich et al., 1985; Puig-Antich et al., 1993; Stark et al., 1990; Stark et al., 1993).

Depressed children and adolescents as well as their parents report elevated levels of conflict within their families (Fendrich et al., 1990; Stark et al., 1990; Hops, Lewinsohn, Andrews, & Roberts, 1990). This conflict exists in parent-child relationships as well as in sibling relationships. Conflict between parents and their adolescents is a significant predictor of depression (Forehand et al., 1988; Sheeber et al., 1997). Ratings of tension and antagonism between mothers and their youngsters are higher among depressed children compared to controls (Puig-Antich et al., 1993). Relationships between fathers and their depressed youth involve more tension, less warmth, and increased hostility compared to controls (Puig-Antich, 1985). Depressed children also describe their sibling relationships as involving more antagonism and fighting than non-depressed children (Puig-Antich et al., 1985).

Cohesion, the emotional closeness between family members, is another family functioning variable that is related to depression in youth. A moderate level of cohesion between family members is considered optimal (Olson, Russell, & Sprenkle, 1983). Compared to their non-depressed counterparts, depressed children are more likely to rate their families as lower in cohesion (Messer & Gross, 1995). Extremely low cohesion is associated with depressive symptoms (Messer & Gross). Similarly, heightened depressive symptomatology among youth is associated with disengagement, or decreased level of attachment, between family members (Barrera & Garrison-Jones, 1992; Hops et al., 1990).

Families including a depressed child often exhibit communication difficulties between family members. Depth and amount of communication between mother and

child and between father and child are lower among depressed children compared to psychiatric and normal control group samples (Puig-Antich, 1985; Puig-Antich et al., 1993). In addition, families of depressed children demonstrate less communication between siblings compared to controls (Puig-Antich et al., 1993). For youngsters with depression, lowered communication among family members is characteristic of their family interactions and may be related to the development and maintenance of depressive disorders in youth.

The family functioning variable of family sociability refers to the extent to which families engage in pleasurable activities together, which may occasionally involve the inclusion of non-family members. Depressed youngsters and their parents rate their families as less involved in social and recreational activities than control groups, comprised of anxious and non-depressed youth and their parents (Stark et al., 1993). Similarly, depressed children report that their parents restrict family sociability more than socially anxious youth (Johnson, Inderbitzen-Nolan, & Schapman, 2005). Family sociability can result in the forging of relationships with non-family members, which is helpful in building extrafamilial social support networks. The lowered level of sociability among families of depressed children and adolescents likely contributes to the development and maintenance of depressive symptoms.

Negative parenting practices, such as low levels of support and rewards and a high amount of affectionless control and criticism, are often employed in families of depressed youth (Arieti & Bemporad, 1980; Cole & Rehm, 1986; Messer & Gross, 1995; Normura et al., 2002; Sheeber et al., 2001). Depressed children and their parents rate

parenting practices used in their families as more negative than that of control families (Messer & Gross). Ratings of negative parenting practices by depressed youngsters and their parents are predictive of increased depressive symptoms (Bruce et al., 2006). Family environments characterized by low supportiveness are associated with adolescents experiencing elevated levels of depression (Sheeber et al.). In contrast, the perception of parents and siblings as supportive is a protective factor that is associated with prevention of the onset of depression among youth experiencing stressors (McFarlane, Bellissimo, Norman, & Lange, 1994). In a study of the interactions between mothers of depressed and non-depressed children, mothers of depressed children rewarded their children less than mothers of non-depressed children (Cole & Rehm, 1986). Another feature of the parenting of depressed youth is the use of high affectionless control, which is predictive of child psychopathology, including depression (Normura et al.). In addition, parents of depressed youth tend to be highly critical (Arieti & Bemporad).

While previous research has indicated that families, especially parents, contribute to the development and maintenance of depression, families can also promote healthy psychosocial development and help children and adolescents effectively deal with stressors. Close relationships with parents serve as protective factors for adolescents' adjustment, especially for girls (Petersen et al., 1991). In addition, authoritative parenting, encompassing warmth, structure, and high expectations, as well as connections to extended supportive family networks, are protective factors involving the family (Masten & Coatsworth, 1998).

Since disturbances in family functioning are related to the development and maintenance of depression, altering negative features of the family environment of depressed girls in the domains of conflict, cohesion, communication, family sociability, and parenting practices may benefit the mental health of girls with depression. Teaching primary caregivers skills to improve their family environment and to act as buffers against their daughters' stress while the daughters are undergoing CBT may yield a sustained reduction in girls' depressive symptoms.

Assessment of Family Functioning

Because of the noted disturbances in the family environment of depressed children and adolescents, assessing aspects of family functioning is useful to elucidating the development and maintenance of depressive disorders in youth. When evaluating family functioning variables, a multi-rater approach is recommended, as convergent validity of the perspectives of various informants from a family when rating family functioning variables is generally fairly weak (Alexander et al., 1984; Cole & Jordan, 1989; Friedman et al., 1987; Olson et al., 1985). In addition, the use of multiple informants to measure family functioning constructs is crucial because depressed children's responses may be negatively influenced by their depressive state (Sheeber & Sorensen, 1998). To more fully comprehend a family's functioning, a primary caregiver's perception of characteristics of the family environment is typically a beneficial perspective to ascertain in conjunction with a youth's opinion. Thus far, the importance of insider perspectives, those within the family, has been addressed. Collecting ratings of family functioning from outsiders, those observing the family system, is also emphasized

in family assessment (Carlson, 2003). While gathering information from outsiders as well as insiders about a family's functioning is ideal, this approach is not always feasible or efficient for research purposes.

It is recommended that family assessment begin at the whole family level (Snyder et al., 1995). Although there is consensus that analyzing multiple levels of the family context, including individuals, dyads, and the nuclear family, is beneficial for capturing the complexity of families during family assessment, this technique is not always necessary based on the goals of the assessment (Carlson, 2003). For research purposes, assessing overall family functioning with the family as the primary unit of analysis can be a viable option because it is efficient in terms of time and cost.

Selecting a method for assessment is another key factor requiring consideration when assessing a family. The particular method and measure for family assessment should be consistent with the purpose of the assessment (Grotevant, 1989). The main objective of assessing family functioning in research is to reliably quantify abstract theoretical constructs of interest to test hypotheses (Carlson, 2003). There are several ways to measure family functioning, including self-report, observation, and interview methodologies (Carlson). While each of these methods has advantages and disadvantages, a comprehensive review of the advantages and disadvantages is beyond the scope of this discussion. Self-report questionnaires are often used in research because they are brief and procedures for administration are clearly specified, which eases replicated administration of questionnaires.

Choosing a self-report rating scale should be guided by theory (Carlson, 2003). Previous research on the family context of depressed youth indicates that these families are characterized by high conflict, low cohesion, communication difficulties, and reduced family sociability (Messer & Gross, 1995; Normura et al., 2002; Puig-Antich et al., 1985; Puig-Antich et al., 1993; Stark et al., 1990; Stark et al., 1993). Therefore, a psychometrically reliable and valid self-report questionnaire evaluating these areas should be used for research, which tests hypotheses involving these constructs.

Although numerous self-report measures have been created to assess the family context, many of these measures were designed for use with adults or adolescents (Schumm, 2001). Researchers interested in obtaining a youth's perspective of the family environment are faced with the challenge of finding a psychometrically sound self-report questionnaire, which measures a variety of family functioning variables and is appropriate for use with children. To develop a self-report measure of key aspects of family functioning, Bloom (1985) conducted a factor analysis of numerous prominent measures of family functioning to identify common factors across measures and family theories. The measures included in the factor analysis were the Family Environment Scale (Moos, 1974), the Family-Concept Q Sort (van der Veen, Huebner, Jorgens, & Neja, 1964), the Family Adaptability and Cohesion Evaluation Scales (Olson, Portner, & Bell, 1978), and the Family Assessment Measure (Skinner, Steinhauer, & Santa-Barbara, 1983). Based on his findings, Bloom then constructed the Self-Report Measure of Family Functioning (SMRFF). The SMRFF, originally developed for adults, comprises 15

subscales and is useful for measuring fundamental aspects of the family environment with this population.

Stark and colleagues modified the SMRFF to the SMRFF-C to increase its accessibility to children and adolescents by simplifying the language and removing double negatives (Stark et al., 1990). The current version of the measure (SMRFF-CR; Stark, 2002) was the result of improving the SMRFF-C by eliminating scales with low alphas, removing items with low factor loadings, and enhancing the child-friendly nature of the items. The scales from the SMRFF-CR, which have adequate reliability, are appropriate for use with children and adolescents, and are pertinent to the assessment of families of depressed youth, include Conflict, Cohesion, Communication, and Family Sociability.

In addition to the utility of developmentally-sensitive family assessment methods for measuring family functioning variables to better understand the development and maintenance of depressive disorders in youngsters, accurate measurement of family functioning is helpful for studying whether these variables change as girls undergo treatment for depression. It is also important to analyze whether improvements take place in the known areas of family disturbance (i.e., conflict, cohesion, communication, and family sociability) depending on whether or not primary caregivers are involved in their daughter's treatment and to determine whether changes in these family functioning domains are mechanisms by which treatment effects on girls' depressive symptomatology are maintained over time.

Parental Involvement in Treatment for Depression

Since disturbances in family functioning are common among families of depressed youth and the family environment is a vital context in which girls develop, it may be important to include primary caregivers in the treatment of their child's depression. Addressing problems with family functioning may heighten treatment effects (Kazdin & Weisz, 1998). Presently, there is insufficient evidence to conclude whether the involvement of primary caregivers in girls' treatment for depression has added benefits because they have rarely been incorporated into clinical research studies of treatment for child and adolescent depression (Sander & McCarty, 2005). In fact, in a recent meta-analysis of clinical trials of treatment for depression in children and adolescents, only 32% of the studies included any level of parental involvement (see Sander & McCarty, for review).

Treatment for youth depression has varied greatly in the capacity and extent of parental involvement, with the majority of treatment not including primary caregivers (Sander & McCarty, 2005). Parental involvement in depression treatment for children and adolescents has encompassed primary caregivers learning about depression and the goals of treatment and has ranged from one session to as many as were deemed necessary by clinicians (see Sander & McCarty, for review). A few studies have explicitly included primary caregivers in their children's intervention, which entailed receiving a dose of treatment lasting between 8 and 14 hours that was basically equivalent to the treatment received by their children (see Sander & McCarty, for review).

While the inclusion of primary caregivers in treatment seems beneficial, the limited number of depression intervention studies including a parental component hinders the ability to determine whether parental involvement in youth's depression treatment yields significant benefits beyond those gained by solely treating youngsters with depression. The effect size found in studies, in which parents received a comparable dose of treatment to their child, was 0.40, which is similar to effect sizes found for adolescent-only treatment (Sander & McCarty, 2005). Moreover, there has not been an adequate amount of studies that included primary caregivers and evaluated treatment effects at a follow-up time point (Weisz et al., 2006). The impact of parental involvement on youth's treatment for depression may become more pronounced over time. The dearth of this type of research highlights the need for studies of depression treatment for youngsters that contain follow-up assessment. To advance research on the impact of parental involvement in the treatment of youth with depressive disorders, clinical trials of depression interventions that include primary caregivers and follow-up assessment are needed.

Statement of the Problem

Depression in youth is a serious public health concern due to its association with functional impairment and negative future outcomes. During adolescence and adulthood, there are higher rates of depression in females compared to males with this increase occurring during early adolescence (Compas et al., 1993; Petersen et al., 1991; Weissman & Klerman, 1977; Wichstrom, 1999). Therefore, effective treatment for depressed girls is needed and should be initiated around the start puberty. CBT is a promising approach to

treating girls with depression, as the effectiveness of this therapeutic modality for the treatment of depression has been well established (Asarnow & Carlson, 1988; Birmaher et al., 1996; Lewinsohn et al., 1998). Providing CBT in a group format is conducive to the provision of depression treatment in community settings because it allows for simultaneous treatment of multiple youth.

Understanding the maintenance of treatment effects from depression interventions for children and adolescents is critical, considering the often recurrent course of depression and the high social, emotional, and financial costs of depressive episodes for youth and families. A variety of approaches to relapse and recurrence prevention for depression currently exists and includes continuation of acute pharmacotherapy treatment after the disappearance of depressive symptoms, continuation treatment with booster sessions, and the careful design of depression interventions to incorporate factors known to enhance the maintenance of treatment effects (Simons et al., 2005). However, research on the maintenance of treatment effects from depression interventions for youth is currently limited, as the majority of research on relapse and recurrence prevention for depression has focused on adult populations. There is an apparent need for additional research clarifying mechanisms that decrease the risk of youngsters experiencing subsequent depressive episodes following acute treatment for depression (Hollon et al., 1992).

While continuation treatment with antidepressant medication may be a useful direction for maintaining treatment effects among children and adolescents, this approach requires further investigation. By identifying factors associated with a sustained reduction

in depressive symptoms among youth, researchers and clinicians can incorporate these factors into depression interventions to achieve lasting treatment gains. Extracting from research primarily with adults and also with adolescents, potential factors are continuation treatment with booster sessions, emphasis on treatment fidelity, modification of an individual's negative explanatory style, use of a skills training perspective, and practice applying skills to potential future problems (Hollon et al., 1990; Hollon et al., 1992; Simons et al., 2005). Nevertheless, additional research is required to investigate whether these factors also influence the maintenance of treatment gains from depression interventions for children and adolescents. Therefore, these factors should be integrated into the design of depression treatments for youth and evaluated through randomized clinical trials. A factor that may be related to the maintenance of treatment effects for depressed youngsters, but that has not yet been adequately studied is the incorporation of primary caregivers into their child's depression treatment (Sander & McCarty, 2005).

Considering that aspects of the family environment are related to the development and maintenance of child and adolescent depression and families of depressed youth are often characterized by disturbances in family functioning, it seems logical that primary caregivers be incorporated into their child's depression treatment and that parental involvement be aimed at assuaging disturbances in family functioning. Yet, adding a parental component to treatment can be time consuming and costly. Therefore, it is critical to know whether depression treatment for girls that includes primary caregivers results in maintenance of treatment effects beyond what is accomplished without their

inclusion. Presently, there is insufficient evidence to ascertain whether the incorporation of primary caregivers into girls' depression treatment has added benefits because they have rarely been incorporated into clinical research studies of depression treatment for youngsters (Sander & McCarty, 2005). In a recent meta-analysis of clinical trials of treatment for depression in youth, only 32% of the studies included any level of parental involvement (see Sander & McCarty, for review).

To advance research on the impact of parental involvement in the treatment of depressed girls, clinical trials of depression interventions that incorporate primary caregivers are needed. These studies should include the collection of longitudinal data with follow-up assessments at least one year after treatment because of the episodic nature of depression (Weisz et al., 2006) and because the effect of parental involvement on maintenance of depressive symptom reduction may become more pronounced over time when compared to depression treatments that do not include a parental component. In the assessment of change using longitudinal data, growth curve modeling with the hierarchical linear modeling (HLM) technique has numerous advantages over more traditional methods (Bryk & Raudenbush, 1987; Rogosa et al., 1982; Rogosa & Willett, 1985). For example, growth curve modeling is a flexible approach that allows for a different number of observations for each participant, which commonly occurs due to attrition during the collection of longitudinal data in field experiments. The collection of longitudinal data also permits the evaluation of potential mechanisms by which treatment effects are maintained.

The scarce amount of research on the impact of parental involvement on treatment for child and adolescent depression has left a gap in the literature about mechanisms that might account for a continued reduction in girls' depressive symptoms by incorporating primary caregivers into treatment (Sander & McCarty, 2005). If parental involvement leads to significant improvement in maintenance of treatment effects, it is important to understand why the inclusion of primary caregivers in girls' depression treatment results in a sustained reduction in depressive symptomatology. Previous research demonstrates that increased conflict and decreased cohesion, communication, and family sociability are associated with the development and maintenance of child and adolescent depression. Therefore, positive changes in these family functioning variables are potential mechanisms that could account for maintenance in depressive symptom reduction in girls whose primary caregivers have been included in treatment. Mediational models can be used to formally test these potential underlying mechanisms.

The purpose of the current study is to advance the literature on treatment of depression in girls by addressing gaps related to the maintenance of treatment effects and the impact of parental involvement in treatment. Specifically, this study determined whether adding a parent training (PT) component to a school-based, group-administered CBT intervention for early adolescent girls with a depressive disorder produced a sustained reduction in girls' depressive symptoms beyond that gained by a CBT intervention alone. In addition, this study evaluated the effect of CBT with and without PT on the family functioning variables of conflict, cohesion, communication, and family sociability. Finally, changes in these family functioning variables were assessed to

uncover whether they served as mechanisms by which the PT component yielded the maintenance of reduced depressive symptoms in girls.

To meet the objectives of the current study, the sample was drawn from a larger depression intervention study. Participants included 9- to 14-year-old girls with a depressive disorder, one primary caregiver for each girl who completed measures for the study, and the caregivers involved in the parental component of treatment. The girls were randomly assigned to a CBT only condition, a CBT plus PT condition, or a minimal contact control (MCC) condition. Ratings of girls' depressive symptoms and the family functioning variables of conflict, cohesion, communication, and family sociability were obtained from girls and their primary caregivers at pre-treatment, post-treatment, and annually for up to four years following treatment. Because attrition is inevitable in the collection of longitudinal data, growth curve modeling was used to measure change in depressive symptoms and the specified family functioning variables from post-treatment through the follow-up time points. Mediational model testing was employed to determine whether improvements in the family functioning variables of conflict, cohesion, communication, and family sociability were mechanisms by which parental involvement in treatment resulted in a sustained reduction in girls' depressive symptoms.

Research Hypotheses

Research Question 1

Will level of depressive symptoms for girls in the CBT+PT and CBT only conditions change differently from post-treatment through the annual follow-up assessments?

Hypothesis 1

Girls in the CBT+PT condition are expected to report lower levels of depressive symptoms relative to girls in the CBT only condition from post-treatment through the annual follow-up assessments, which lasted up to four years post-treatment.

Rationale. Although additional studies are needed with follow-up of one year or more, current research suggests that treatment effects from CBT with depressed youth typically decline over time (Michael & Crowley, 2002; Reinecke et al., 1998). Therefore, girls who participated in CBT only are expected to experience an increase in depressive symptoms between post-treatment and the annual follow-up assessments. On the other hand, girls, who received CBT and whose primary caregivers underwent PT, are predicted to report lower levels of depressive symptoms than girls whose primary caregivers did not partake in PT because of the expected improvements in the family environment resulting from participation in PT. When negative characteristics of the family environment of depressed youth associated with depression, specifically high conflict, low cohesion, communication difficulties, and reduced family sociability (Messer & Gross, 1995; Puig-Antich et al., 1985; Puig-Antich et al., 1993; Stark et al., 1990; Stark et al., 1993), are modified through PT, families are hypothesized to more strongly contribute to the maintenance of long term depressive symptom reduction in girls. In addition, during PT, primary caregivers learned how to support their child's use of CBT skills and could encourage continued application of these skills to new stressors in the girls' lives. Girls from the MCC group were not included in the analysis of girls'

depressive symptoms because they received CBT after the post-treatment assessment, and therefore, could not function as a control group.

Research Question 2

Will girls' ratings of the family functioning variables of conflict, cohesion, communication, and family sociability change differently over time depending on whether their primary caregivers received PT?

Hypothesis 2A

Change in ratings from pre- to post-treatment of the family functioning variables of conflict, cohesion, communication, and family sociability by girls in the CBT, CBT+PT, and MCC conditions are expected to differ across study conditions. Assuming a significant interaction between study condition and time, at post-treatment, girls in the CBT+PT condition are predicted to report less conflict and more cohesion, communication, and family sociability than girls in the CBT only and MCC conditions. There is not expected to be a difference in ratings of these family functioning variables between girls in the CBT only and MCC conditions at post-treatment.

Hypothesis 2B

Girls in the CBT+PT condition are predicted to report less conflict and more cohesion, communication, and family sociability than girls in the CBT only condition from post-treatment through the annual follow-up assessments, which lasted up to four years post-treatment.

Rationale. Hypothesis 2 is divided into two parts in order to first assess girls' ratings of the family functioning variables of conflict, cohesion, communication, and

family sociability from pre-treatment to post-treatment among girls in the two treatment conditions (CBT and CBT+PT) and the control condition (MCC). The purpose of Hypothesis 2B is to evaluate girls' ratings of these family functioning variables in the CBT+PT and CBT only groups from post-treatment through the follow-up assessments. Girls from the MCC group were not included in Hypothesis 2b because they received CBT following the post-treatment assessment and could no longer function as a control group.

Families of depressed girls include numerous negative interactional patterns, specifically heightened conflict, low cohesion, communication difficulties, and reduced family sociability (Messer & Gross, 1995; Puig-Antich et al., 1985; Puig-Antich et al., 1993; Stark et al., 1990; Stark et al., 1993). These negative family interactions are considered fairly stable over time (Sheeber et al., 2001). Participation in PT is predicted to yield improvements in the common areas of disturbance in families of depressed youth and to be reported by girls whose primary caregivers engaged in PT. These improvements are expected to result from the primary caregivers' acquisition of skills during PT, such as conflict resolution skills, communication techniques, and positive methods for managing girls' behavior. Girls in the CBT only and MCC conditions are not expected to report improvements in the family functioning variables of conflict, cohesion, communication, and family sociability from pre-treatment to post-treatment and beyond for the CBT only group because their primary caregivers did not take part in PT, which was aimed at improving the family environment.

Research Question 3

Will primary caregivers' ratings of the family functioning variables of conflict, cohesion, communication, and family sociability change differently over time depending on whether they received PT?

Hypothesis 3A

Change from pre- to post-treatment of ratings of the family functioning variables of conflict, cohesion, communication, and family sociability by primary caregivers of girls in the CBT, CBT+PT, and MCC conditions is expected to differ across study conditions. Assuming a significant interaction between study condition and time, at post-treatment, primary caregivers of girls in the CBT+PT condition are predicted to report less conflict and more cohesion, communication, and family sociability than primary caregivers of girls in the CBT only and MCC conditions. There is not expected to be a difference in ratings of these family functioning variables between primary caregivers of girls in the CBT only and MCC conditions at post-treatment.

Hypothesis 3B

Primary caregivers of girls in the CBT+PT condition are predicted to report less conflict and more cohesion, communication, and family sociability than primary caregivers of girls in the CBT only condition from post-treatment through the annual follow-up assessments, which lasted up to four years post-treatment.

Rationale. Hypothesis 3 is separated into two parts in order to first assess ratings of the family functioning variables of conflict, cohesion, communication, and family sociability from pre-treatment to post-treatment among primary caregivers of girls in the

two treatment conditions (CBT and CBT+PT) and the control condition (MCC). The goal of Hypothesis 3B is to evaluate primary caregivers' ratings of these family functioning variables in the CBT+PT and CBT only groups from post-treatment through the follow-up assessments. Primary caregivers of girls from the MCC group were not included in Hypothesis 3b because their daughters received CBT following the post-treatment assessment and could no longer function as a control group.

The family environment of depressed youth is typically characterized by elevated conflict, low cohesion, communication difficulties, and reduced family sociability (Messer & Gross, 1995; Puig-Antich et al., 1985; Puig-Antich et al., 1993; Stark et al., 1990; Stark et al., 1993). Furthermore, there is evidence that mothers' perceptions of adverse family relationships remain unchanged even after their children no longer meet criteria for a depressive disorder (Puig-Antich et al., 1985). For these reasons, primary caregivers of girls who did not engage in PT are predicted to report high levels of conflict and low levels of cohesion, communication, and family sociability. In contrast, during PT, primary caregivers learned skills, such as conflict resolution, communication techniques, and positive behavioral management strategies, which are expected to lead to improvements in the common areas of disturbance in family functioning and to be reported by primary caregivers from pre-treatment through the follow-up assessments.

Research Question 4

Will the relation between treatment condition and level of depressive symptoms at the one-year follow-up time point be mediated by girls' and primary caregivers' ratings of conflict, cohesion, communication, and family sociability at that time point?

Hypothesis 4

The relation between treatment condition (i.e., CBT or CBT+PT) and girls' level of depressive symptoms at the one-year follow-up time point is expected to be mediated by girls' and primary caregivers' ratings of conflict, cohesion, communication, and family sociability at that follow-up time point.

Rationale. Disturbances in family functioning, specifically high conflict and low cohesion, communication, and family sociability are related to the development and maintenance of depression in youngsters (Messer & Gross, 1995; Puig-Antich et al., 1985; Puig-Antich et al., 1993; Stark et al., 1990; Stark et al., 1993). The objective of PT in this study was to remediate these disturbances in the family environment of depressed girls by teaching primary caregivers conflict resolution skills, communication techniques, and use of reinforcement for desirable behavior. In addition, they learned selected skills taught to girls during CBT, such as problem solving and cognitive restructuring. It was predicted that primary caregivers would then be able to help girls apply these therapeutic skills to sustain treatment effects related to girls' depressive symptoms. Since disturbances in family functioning are associated with the development and maintenance of depression in girls and the goal of PT was to foster positive changes in family functioning, the relation between participation in PT and maintenance of reduced depressive symptoms in girls at the one-year follow-up time points is expected to be explained by primary caregivers' and girls' perception of improvements in the family's levels of conflict, cohesion, communication, and family sociability at that time point. The reason that the one-year follow-up time point was chosen for this hypothesis is because a

significant difference in level of depressive symptoms between girls whose primary caregivers did and did not receive PT is not anticipated to emerge until at least one year post-treatment. This prediction is based on the finding that CBT is effective in treating depression in the short-term, but often does not yield sustained treatment effects on depressive symptoms of children and adolescents beyond one year post-treatment (Weisz et al., 2006). In addition, the one-year follow-up time point was selected because it had sufficient sample sizes to run the mediation analyses, whereas, later time points did not.

CHAPTER 3

Method

Data for this study were drawn from a larger longitudinal depression intervention study funded by the National Institute of Mental Health with Kevin Stark, Ph.D., as the principal investigator (PI). The overall purpose of the larger investigation is to evaluate the efficacy of CBT with and without a PT component for early adolescent girls with a depressive disorder. The participants, instrumentation, and procedure presented in this study design are a subset of those from the larger investigation.

Participants

Overview

The original sample of participants included 151 girls, 141 primary caregivers who completed measures for the study (i.e., the semi-structured diagnostic interview and/or the family functioning measure), and 89 caregivers whose child was assigned to the CBT+PT condition. Regarding caregivers who completed measures, there were occasionally two caregivers who completed measures, but only the one who completed measures on more occasions was selected for data analysis and is referred to as the primary caregiver in this study. When both caregivers completed measures an equal number of times, the maternal caregiver was chosen as the primary caregiver. For caregivers in the CBT+PT condition, when there were two caregivers, both caregivers were included as participants because they had the opportunity to participate in treatment. The sample was drawn from the depression intervention study described previously.

Eligibility for participation in the study required that girls were experiencing a depressive disorder as their primary psychological disorder. Girls were excluded from the study if they had a primary diagnosis other than a depressive disorder (n = 44); the diagnosis of a psychotic disorder (n = 3); an IQ below 85 (n = 1); a learning disability that could interfere with valid completion of measures (n = 0); or active suicidal or homicidal ideation (n = 1). Girls could not receive auxiliary treatment for depression at any time while they were study participants.

At post-treatment, 18 girls had discontinued participation in the study for reasons delineated in the Procedure section. Information about the original sample of child and primary caregiver participants is presented in Appendix B. Testing for significant differences between the original sample and final sample was conducted and is described in the beginning of the Results section. The final sample included 133 girls along with 126 primary caregivers who completed measures and 79 caregivers in the CBT+PT condition. Descriptions of the final sample of child and caregiver participants follow and are presented separately with information on caregivers further divided into those who completed measures and those who were randomly assigned to the CBT+PT condition.

Child Participants. The final sample of child participants included 133 girls with a mean age of 10.68 years old (*SD* = 1.32) and 30.1% enrolled in fourth grade, 24.1% in fifth grade, 23.3% in sixth grade, and 22.6% in seventh grade. The ethnic composition of child participants was 40.6% White Hispanic, 38.3% White NonHispanic, 11.3% African American, 1.5% Asian, and 8.3% Multi-Racial. Demographic information for the girls is presented in Table 1.

Table 1

Child Demographic Variables

Variable	n	Percent
Age		
9	33	24.8
10	31	23.3
11	28	21.1
12	29	21.8
13	11	8.3
14	1	0.8
Grade		
4	40	30.1
5	32	24.1
6	31	23.3
7	30	22.6
Ethnicity		
White NonHispanic	51	38.3
White Hispanic	54	40.6
African American	15	11.3
Asian	2	1.5
Multi-Racial	11	8.3

The family structure for each girl was determined by reviewing data files for child participants and recording family members reported as living in the home. Based on this information, the following broad categories were generated to capture the varying family structures: intact family, stepfamily, single parent family, and multi-adult household. Multi-adult household is not a term currently used in the literature, but was created for this study to capture family structures that include at least one parent and numerous other adults. There were two types of multi-adult households, those with immediate and extended family members (e.g., aunts, uncles, and grandparents), referred to as relatives, living in the home and those with both relatives and non-related adults (e.g., mother's boyfriend and friends of the parents) living in the home. The family structure categories were further analyzed to provide additional descriptive information about each girl's living arrangement. Specifically, the intact families were headed by biological parents, grandparents, or other relatives (i.e., sister and brother-in law). The stepfamilies consisted of a biological parent and a stepmother or stepfather. The single parent families were separated into families including single mothers or single fathers. The multi-adult households were divided into families with only adult relatives living in the home and families with both relatives and non-related adults living in the home. In addition, the identification of whether other children lived in each household was determined for the different types of family structures. The other children comprised biological siblings, half siblings, step siblings, cousins, and non-related children. Table 2 lists the family structure for the final sample of child participants.

Table 2

Family Structure for Child Participants

Family Structure	n	Percent
Intact Family	53	39.8
Biological Parents	49	92.5
Grandparents	3	5.7
Other	1	1.9
Additional Children		
Yes	45	84.9
No	8	15.1
Single Parent Family	26	19.5
Single Mother	20	76.9
Single Father	6	23.1
Additional Children		
Yes	20	76.9
No	6	23.1
Stepfamily	21	15.8
Stepfather	17	81.0
Stepmother	4	19.0
Additional Children		
Yes	17	81.0
No	4	19.0
Multi-Adult Household	31	23.3
Relatives	20	64.5
Relatives and Non-Related Adults	11	35.5
Additional Children		
Yes	26	83.9
No	5	16.1
Unknown	2	1.5

Of the child participants in the final sample, 79.7% (n = 106) had MDD, 12.8% (n = 17) had DD, 2.3% (n = 3) had DDNOS, and 5.3% (n = 7) had DD and MDD. The mean severity of depressive symptoms at pre-treatment, as measured by the K-SADS-P IVR total depression score, was 38.02 (*SD* = 8.69). Calculations of prevalence of comorbidity in the final sample of child participants indicated that 31.6% (n = 42) had 2 psychological disorders and 22.6% (n = 30) had 3 or more diagnoses. The remainder of the girls (n = 61; 45.9%) had one diagnosis. Table 3 lists comorbid diagnoses for girls with two and three or more psychological disorders along with the number of child participants in the final sample that met criteria for these comorbid diagnoses.

Table 3

Comorbidity for Child Participants

# of Diagnoses	Comorbid Diagnoses	n
2		
	Generalized Anxiety Disorder (GAD)	23
	Attention-Deficit/Hyperactivity Disorder (ADHD)	7
	Anxiety Disorder NOS	3
	Separation Anxiety Disorder	3
	Specific Phobia	2
	Panic Disorder	1
	Adjustment Disorder with Anxiety	1
	Oppositional Defiant Disorder (ODD)	1
3 or More		
	GAD, ADHD	7
	GAD, Specific Phobia	4
	GAD, Social Phobia	3
	GAD, Post-traumatic Stress Disorder (PTSD)	1
	Separation Anxiety, GAD	2
	Separation Anxiety, ADHD	1
	Separation Anxiety, Anxiety Disorder NOS	1
	ADHD, Anxiety Disorder NOS	1
	ADHD, Specific Phobia	1
	ADHD, ODD	1
	Specific Phobia, PTSD	1
	Specific Phobia, Social Phobia	1
	Specific Phobia, Separation Anxiety	1
	PTSD, Eating Disorder	1
	PTSD, Specific Phobia, GAD	1
	PTSD, Social Phobia, ADHD	1

Note. All child participants had a primary diagnosis of a depressive disorder.

Primary Caregivers with Completed Measures. The final sample of 126 primary caregivers whose daughters completed the post-treatment assessment included 90.5% maternal caregivers and 9.5% paternal caregivers. Of the primary caregivers, there were 84.1% biological mothers, 9.5% biological fathers, 0.8% stepmothers, 4.0% grandmothers, 0.8% adoptive mothers, and 0.8% sisters. The ethnic composition of the primary caregivers was 42.9% White NonHispanic, 38.1% White Hispanic, 11.9% African American, 1.6% Asian, 0.8% American Indian, 3.2% Multi-Racial, and 1.6% unknown. Educational status of the primary caregivers ranged from less than high school to an advanced degree with 2.4% stopping before high school, 7.1% finishing some high school, 13.5% completing high school/GED, 28.6% finishing some college/junior college, 11.1% graduating from a 4-year college, 5.6% obtaining an advanced degree, and 31.7% unknown. Table 4 presents demographic information for the final sample of primary caregivers that completed measures.

Table 4

Demographic Variables for Primary Caregivers with Completed Measures

Variable	n	Percent
Primary Caregivers		
Maternal Caregiver	114	90.5
Biological Mother	106	84.1
Stepmother	1	0.8
Grandmother	5	4.0
Adoptive Mother	1	0.8
Sister	1	0.8
Paternal Caregiver	12	9.5
Biological Father	12	9.5
Ethnicity		
White NonHispanic	54	42.9
White Hispanic	48	38.1
African American	15	11.9
Asian	2	1.6
American Indian	1	0.8
Multi-Racial	4	3.2
Unknown	2	1.6
Educational Status		
Less than high school	3	2.4
Some high school	9	7.1
Finished high school/GED	17	13.5
Some college/junior college	36	28.6
Finished 4 year college	14	11.1
Advanced Degree	7	5.6
Unknown	40	31.7

Caregivers in CBT+PT Condition. The final sample of caregivers in the CBT+PT condition included 79 caregivers, 54.4% maternal caregivers and 45.6% paternal caregivers. While all girls had a maternal caregiver, 7 girls did not have a paternal caregiver. Of the maternal caregivers, 97.7% were biological mothers and 2.3% were stepmothers. Of the paternal caregivers, 60.5% were biological fathers, 14.0% were stepfathers, and 9.3% were the mother's boyfriend. The ethnic composition of the caregivers was 46.8% White NonHispanic, 27.8% White Hispanic, 11.4% African American, 2.5% Asian, and 11.4% unknown. The educational status of the caregivers ranged from less than high school to an advanced degree with 1.3% finishing some high school, 10.1% completing high school/GED, 25.3% finishing some college/junior college, 11.4% graduating from a 4-year college, 7.6% obtaining an advanced degree, and 44.3% unknown. Table 5 presents demographic information for the final sample of caregivers in the CBT+PT condition.

Table 5

Demographic Variables for Caregivers in CBT+PT Condition

Variable	n	Percent
Caregivers		
Maternal Caregiver	43	54.4
Biological Mother	42	97.7
Stepmother	1	2.3
Paternal Caregiver	36	45.6
Biological Father	26	60.5
Stepfather	6	14.0
Mother's Boyfriend	4	9.3
Ethnicity		
White NonHispanic	37	46.8
White Hispanic	22	27.8
African American	9	11.4
Asian	2	2.5
Unknown	9	11.4
Educational Status		
Some high school	1	1.3
Finished high school/GED	8	10.1
Some college/junior college	20	25.3
Finished 4 year college	9	11.4
Advanced Degree	6	7.6
Unknown	35	44.3

Instrumentation

Measures of Depression

Children's Depression Inventory. The Children's Depression Inventory (CDI; Kovacs, 1981; see Appendix C) is a 27-item self-report questionnaire for children and adolescents between the ages of 7 and 17. The CDI is used to assess the presence and severity of depressive symptoms. For each item, respondents select one of three statements that best describes how they have been feeling over the past two weeks. For each item, one of the statements represents a definite symptom of depression, one represents a mild symptom of depression, and the other represents no symptom of depression. The CDI results in a Total score and scores on the following five subscales: Negative Mood, Interpersonal Problems, Ineffectiveness, Anhedonia, and Negative Self-Esteem. Only the Total score was used in this study. The Total score can range from 0 to 54, with higher scores indicating the presence of increased depressive symptoms. A Total score of 16 seems to be the optimal cutoff score for predicting a depressive disorder (Timbremont et al., 2004) and was used in this study during the screening process to identify girls who appear to be experiencing a clinically significant level of depressive symptoms. Internal consistency of the CDI as measured by coefficient alpha was reported to range from 0.71 to 0.87 with heterogeneous samples (Kovacs, 1992). Test-retest reliability coefficients for intervals of one to four weeks ranged from 0.38 to 0.87; whereas for intervals of six weeks, they ranged from 0.54 to 0.67 (Kovacs). There is support for the convergent validity of the CDI, as CDI scores correlate fairly well with scores on other self-rating scales for depression, such as a correlation of 0.73 between the

CDI and the Reynolds Adolescent Depression Scale (Reynolds, 1987) and a correlation of 0.81 between the CDI and the Children's Depression Rating Scale (Asarnow & Carlson, 1985).

Beck Depression Inventory for Youth (BDI-Y; Beck, Beck & Jolly, 2001; See Appendix D*).* The BDI-Y is a self-report questionnaire that evaluates the presence and severity of depressive symptoms in children and adolescents between the ages of 7 and 14. The measure was created as part of a group of questionnaires designed to assess a youngster's emotional and social functioning. The measure includes 20 items, which evaluate negative thoughts, feelings of sadness, and physiological symptoms of depression. Each statement is rated on a 4-point scale of *never*, *sometimes*, *often,* and *always*. Scores for each item are summed for a total score, with higher scores reflecting greater severity of depressive symptoms. Total scores range from 0 to 60. The descriptive categories used to classify severity of depressive symptoms range from average to extremely elevated and are determined based on age (Beck et al.). Specifically, for 7 to 10 year olds, scores of 35 or higher are considered extremely elevated, scores of 25 - 34 are moderately elevated, scores of 20 - 24 are mildly elevated, and scores of 20 and below are average. For 11 to 14 year olds, scores of 29 or higher are considered extremely elevated, scores of 21 - 28 are moderately elevated, scores of 17 - 20 are mildly elevated, and scores of 16 and below are average. High internal consistency for the BDI-Y has been found, with coefficient alphas of 0.91 for females aged 7 to 10, 0.90 for males aged 7 to 10, 0.91 for females aged 11 to 14, and 0.92 for males aged 11 to 14. Over a retest interval of seven days, test-retest reliabilities ranged from 0.79 to 0.92

(Beck et al.). The BDI-Y has also been found to possess high convergent validity with the CDI total score ($r = 0.72$). In addition, children with a diagnosable mood disorder scored significantly higher on the BDI-Y than children from other clinical groups (Beck et al.). These reliability and validity estimates have been replicated on a school-based sample of girls ($N = 859$), aged 9 to 13 (Stapleton, Sander, & Stark, 2007). Reliability and validity estimates were similar across racial and ethnic groups, but were found to be slightly lower for the 9-year-old age group. In general, Stapleton and colleagues found support for the use of the BDI-Y as a screening tool for depression. The BDI-Y was administered as part of the screening procedure in this study. Cronbach's alpha for the screening sample was found to be high ($\alpha = 0.93$).

Diagnostic and Statistical Manual Brief Symptom Interview for Depression. The Diagnostic and Statistical Manual Brief Symptom Interview for Depression (DSM Interview; Stark & Sander, 2002; see Appendix E) is a semi-structured interview, which was created to screen and monitor depressive symptoms of girls in the larger depression intervention study. The DSM Interview is a brief symptom interview that evaluates the presence of depressive symptoms and is based on the DSM-IV TR criteria for depressive disorders. Symptoms are rated as "present" if they have occurred more days than not over the past two weeks and if they are distressing or clinically impairing. The DSM Interview was used in this study to determine if participants seemed to meet diagnostic criteria for a depressive disorder.

The Schedule for Affective Disorders and Schizophrenia for School-Age Children. The Schedule for Affective Disorders and Schizophrenia for School-Age Children-

Present State (K-SADS-P IVR; Ambrosini & Dixon, 2000) is a semi-structured diagnostic interview designed for use with children and adolescents to assess the present state of symptom severity and to diagnose psychological disorders occurring within the preceding year. The K-SADS-P IVR provides information about symptoms and psychological disorders in youth between the ages of 6 and 18, as prescribed by the DSM-IV TR. The areas covered by the K-SADS-P IVR include: depressive disorders, mania, eating disorders, anxiety disorders, behavioral disorders, substance abuse, and psychosis. The interview is conducted by a trained clinician with the child and primary caregiver separately and inquires about the presence of symptoms in each of the aforementioned areas. The interviews with the primary caregiver and child each last approximately 1.5 hours. However, administration time varies depending on range and severity of psychopathology. Ratings for each symptom are obtained from the child and primary caregiver. Summary ratings for each symptom are then determined by the interviewer based on all available sources of information. Each specific symptom is rated according to severity for the present episode (past 12 months) and for the week prior to date of administration. The symptoms are rated on either a four-point scale or a six-point scale with higher ratings indicating greater symptom severity. A rating of three or more for each item is considered clinically significant. The summary ratings from the present episode and the last week are used to determine diagnoses according to DSM-IV TR criteria.

Because the K-SADS was recently updated to the KSADS-P IVR, there is limited psychometric data available. Inter-rater reliability for diagnoses of Major Depressive

Disorder, Dysthymic Disorder, Generalized Anxiety Disorder, Separation Anxiety Disorder, and Oppositional Defiant Disorder using the K-SADS-P IVR was found to be high for a small sample (Ambrosini, 2000). An older version of the K-SADS (K-SADS-PL) had adequate test-retest reliability, with a kappa of 0.90 for the diagnosis of depressive disorders and kappas ranging from 0.63 to 1.00 for diagnoses of other types of disorders (Kaufman et al., 1997).

In the current study, trained doctoral students under the supervision of a licensed psychologist used the K-SADS-P IVR to diagnose Axis I disorders and to determine eligibility of study participants. A continuous total depression score can be derived from the K-SADS P-IVR ratings and was utilized as the measure of girls' depressive symptoms. The total depression score has a range of 17 to 97 and can be computed by summing ratings on 17 depressive symptoms (Ambrosini, Metz, Prabucki, & Lee, 1989; Ambrosini, Metz, Bianchi, Rabinovich, & Undie, 1991). This composite score is comprised of severity ratings for the following depressive symptoms: depressed mood, irritability, diurnal mood variation (morning only), excessive guilt, anhedonia, fatigue, diurnal variation of fatigue (morning only), difficulty concentrating, psychomotor agitation, psychomotor retardation, insomnia, hypersomnia, loss of appetite, increased appetite, hopelessness, avoidant behavior when depressed, and suicidal ideation. When multiple aspects of a symptom are assessed (e.g., psychomotor agitation, psychomotor retardation, and insomnia), the overall severity rating for that symptom is used. Ambrosini and colleagues (1991) found that this total depression score correlated significantly with the Beck Depression Inventory in a sample of adolescent girls in an

outpatient setting. The total depression score has demonstrated internal consistency with Cronbach's alpha ranging from 0.72 to 0.89 (Ambrosini et al., 1989; Chambers et al., 1985), as well as acceptable test-rest reliability with r = 0.81 (Chambers et al.).

The total depression score employed by Ambrosini and colleagues (1991) was utilized in this study. However, to increase consistency between the total depression score and the specific symptoms used to diagnose depression in youth, several modifications were made. The social withdrawal item was excluded because it is not included in the K-SADS-P IVR. The diurnal mood variation (morning only) and the diurnal variation of fatigue (morning only) were removed from the scale, while both indices of anhedonia (i.e., loss of interest and loss of pleasure) were included. The negative self-image item was also added to the total depression score. Last week summary ratings determined by the interviewers were utilized to compute the total depression score. Internal reliability for the total depression score used in this study was excellent (Cronbach's alpha = .91).

Measures of Family Functioning

Self-Report Measure of Family Functioning-Child Revised. The Self-Report Measure of Family Functioning-Child Revised (SMRFF-CR; Stark, 2002; see Appendix F) is a 40-item self-report measure of family functioning, which was administered to the child participants. This instrument is the revised version of the Self-Report Measure of Family Functioning (SMRFF; Bloom, 1985). The original SMRFF was modified by simplifying the language of the items to increase the measure's accessibility to children (Stark et al., 1990). The measure was revised again to the current version to improve the wording of items and to remove subscales that were not validly measuring the intended

underlying constructs. The four subscales of the SMRFF-CR that were used in this study were: Conflict, Communication, Cohesion, and Family Sociability. Recent research involving the SMRFF-CR found high internal consistency for these four scales: Conflict = 0.76, Communication = 0.89, Cohesion = 0.82 and Sociability = 0.84 (Graves, 2007).

Self-Report Measure of Family Functioning. The Self-Report Measure of Family Functioning (SMRFF; Bloom, 1985; See Appendix F) was administered to the primary caregiver participants. The creation of this measure involved a series of investigations of the psychometric properties of the Family Environment Scale (Moos & Moos, 1981), the Family-Concept Q Sort (Van der Veen, 1965), the Family Adaptability and Cohesion Evaluation Scales (Olson, et al., 1978), and the Family Assessment Measure (Skinner, et al., 1983). Subsequently, items were selected from these measures, yielding the resultant measure, which consists of 3 dimensions and 15 subscales. Each scale comprises 5 items. The Relationship dimension consists of six scales (i.e., Cohesion, Communication, Conflict, Family Sociability, Family Idealization, and Disengagement), which describe various characteristics of the relationships among family members. The Value dimension includes three scales (i.e., Intellectual, Active-Recreational, and Religious Emphasis), which reflect family values. The third dimension, System Maintenance Dimension, consists of 6 scales (i.e., Organization, External Locus of Control, Democratic Family Style, Laissez-Faire Family Style, Authoritarian Family Style, and Enmeshment) that describe the management style of the parents as well as the family's perceptions about who controls their lives. The subscales used in this study include: Conflict, Cohesion, Communication, and Family Sociability. Internal consistency using Cronbach's alpha

was calculated for each of these scales at the different time points in this study (i.e., Time 1 <pre-treatment>, Time 2 <post-treatment>, Time 3 <1 year following treatment, Time 4 <2 years following treatment>, Time 5 <3 years following treatment>, and Time 5 <4 years following treatment>) and is presented in Table 6. Internal consistency was generally good for the Cohesion, Communication, and Family Sociability scales. However, internal consistency ranged from unacceptable to acceptable for the Conflict scale.

Table 6

Internal Consistency for SMRFF Scales

Scale	Time	n	Cronbach's alpha
Conflict			
	1	202	0.75
	2	85	0.69
	3	38	0.63
	4	21	0.66
	5	11	0.43
	6	3	0.63
Cohesion			
	1	203	0.81
	2	83	0.87
	3	37	0.88
	4	21	0.87
	5	10	0.90
	6	3	0.83

Table 6, cont.

Scale	Time	n	Cronbach's alpha
Communication			
	1	203	0.87
	2	85	0.89
	3	38	0.90
	4	19	0.82
	5	11	0.92
	6	3	0.84
Family Sociability			
	1	200	0.81
	2	84	0.86
	3	37	0.84
	4	20	0.88
	5	11	0.87
	6	3	0.52

Procedure

Ethical Considerations

This study complies with the ethical standards of research delineated by the American Psychological Association and the University of Texas at Austin. Prior to initiation of the study, approval was granted by the Departmental Review Committee for the Department of Educational Psychology and by the Institutional Review Board at the University of Texas at Austin. Before beginning the larger depression intervention study, the superintendent of the selected school districts received a written proposal describing the intervention study. After the proposal was approved by the superintendents, researchers from the depression intervention study met with the principals of each participating school, described the study, and received permission to conduct the study within his or her school. Subsequently the PI met with teachers at each of the schools to describe the investigation and answer questions about the study. The current study did not alter the proposal originally presented to and approved by the superintendent or the answers provided by the researchers in response to the questions posed by school personnel.

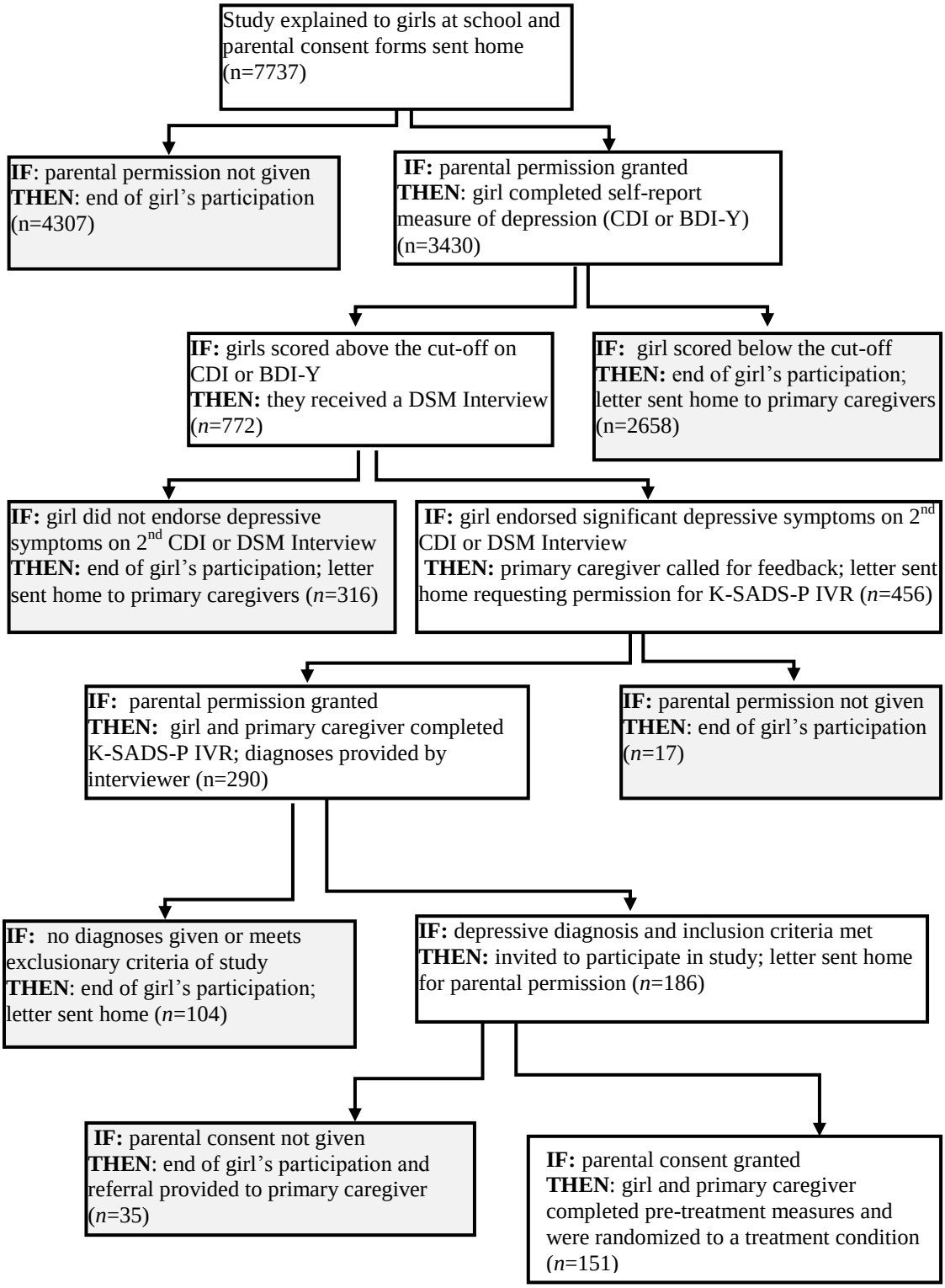
Recruitment of Participants

Letters requesting parental consent for their daughter to participate in a multi-gate screening procedure for the depression intervention study were sent home to primary caregivers of 7737 girls attending public schools in the two selected school districts in central Texas (see Appendix G). If parental consent and child assent (see Appendix H) for girls' participation in the screening procedure were granted, girls completed the CDI

in a large group setting as the first gate of the screening procedure (n = 3430). Trained graduate research assistants (GRAs) were present during this time to ensure that girls completed the CDI independently. During the second year of the study, a new measure of depression in youth, the BDI-Y, was published. The screening procedure in this study was modified to evaluate the potential utility of this measure relative to the CDI by assessing which measure was a more accurate predictor of the presence of a depressive disorder. Consequently, both the CDI and the BDI-Y were used for the first gate of the screening procedure in one of the participating school districts. Girls that exceeded the cut-off score on the CDI or BDI-Y then completed an additional CDI one week later to determine whether they again scored above the cut-off. After the first year of the study, the additional administration of the CDI was replaced with the DSM Interview as the second gate of the screening procedure because the second administration of the CDI was not efficient, as it over-identified girls as depressed. The DSM Interview was administered by a GRA on the same day as the first CDI. If girls exceeded the cut-off score on the second administration of the CDI during the first year of the study or reported enough symptoms during the DSM Interview during the remainder of the study that they were suspected to have a diagnosable depressive disorder (n = 456), GRAs requested consent from primary caregivers (see Appendix I) and assent from daughters (see Appendix J) to participate in the K-SADS-P IVR. The K-SADS-P IVR was administered to 290 girls and one primary caregiver for each girl by GRAs, who were trained until they received an adequate level of diagnostic reliability (i.e., a minimum of 80% agreement). After completing the KSADS-P IVR, the caregivers of girls with a

primary diagnosis of a depressive disorder and who did not meet the exclusionary criteria (n = 186) were sent a letter describing the pre- and post-treatment assessment, depression intervention, and PT component of the study (see Appendix K). Girls and their primary caregivers were asked in the letter to provide assent and consent, respectively, to participate in the study. If assent and consent were granted, girls and primary caregivers completed pre-treatment measures and were randomly assigned to an experimental condition (n = 151).

Figure 1. Flowchart of Multi-Gate Screening Procedure.



Safety Concerns

If a girl reported suicidal ideation or intent during the CDI, BDI-Y, DSM Interview, or K-SADS-P IVR, a GRA trained in the assessment of suicidal risk determined the level of risk and contacted the PI to discuss the case. A girl presenting with suicidal ideation or intent was supervised as necessary. Girls who reported suicidal ideation or intent, but who were not a risk, completed a safety contract with the school counselor and a trained GRA. The safety contract asked the girls to identify a person they could talk to if they were having suicidal thoughts and listed contact numbers. A primary caregiver of each girl who reported suicidal ideation or intent was contacted. These girls were monitored closely by their school counselor, primary caregivers, and GRAs in order to ensure their safety. If a girl was actively suicidal, a primary caregiver of the girl and a psychiatric consultant for the depression intervention study were contacted and appropriate action was taken. The primary caregivers of girls, who were not actively suicidal (i.e., without intent or a specific plan) but who were having suicidal thoughts, were notified and provided with contact numbers of mental health professionals should the level of risk increase.

Data Collection

The depression summary ratings from the K-SADS-P IVR administered during the screening procedure were used as the pre-treatment measure of depressive symptoms. Following the recruitment of participants and the acquisition of consent and assent, girls and primary caregivers completed the SMRFF-CR and SMRFF, respectively, in groups of approximately four girls and four primary caregivers. GRAs were present during that

time to ensure that all participants completed the family functioning measures independently and to answer any questions that arose. Girls were then randomly assigned to the CBT only condition (n=55), the CBT+PT condition (n=49), or the MCC condition (n = 47). Prior to completion of treatment and the post-treatment measures, 18 girls and their primary caregivers discontinued participation in the study for the following reasons: moved out of school district prior to completion of treatment (n = 7), non-standard treatment administration (n = 6), no longer interested in participating (n = 4), and required hospitalization (n = 1). Thus, the final sample included 45 girls in the CBT only condition, 43 girls in the CBT+PT condition, and 45 girls in the MCC condition along with 126 caregivers that completed measures (i.e., the K-SADS-P IVR and/or the SMRFF) and 79 caregivers in the CBT+PT condition. During the intervention, 12 girls were referred to the psychiatric consultant for an evaluation. Of these girls, ten received medication evaluations and four were prescribed psychotropic medication by the treating psychiatrist. Three of these girls were in the CBT condition and one was in the MCC condition. Data from these girls were included in data analysis because there were only four of them and they were spread across two of the three treatment conditions. Therefore, their data are not expected to significantly impact the results. Furthermore, depressive symptoms for the three girls in the CBT condition from post-treatment through the follow-up analyses were inspected and revealed that their depressive symptoms as measured by the total depression score on the K-SADS-P IVR decreased and increased over time (Girl 1: 37, 36, 25, 28, 24; Girl 2: 22, 37, 19, 21; Girl 3: 18, 32).

Girls and at least one primary caregiver for each girl in all conditions were asked to complete the SMRFF-CR, the SMRFF and the K-SADS-P IVR with a trained graduate student after the 11 week intervention and annually during follow-up assessments of up to four years. During the study, when two caregivers completed the SMRFF, data from the caregiver who completed the SMRFF on more occasions were selected for data analysis with this individual designated as the primary caregiver.

After girls in the CBT and CBT+PT conditions completed treatment and the post-treatment assessment, girls in the MCC condition participated in CBT treatment. Primary caregivers of girls in all treatment conditions received regular telephone calls from trained GRAs to inquire about their daughters' participation in auxiliary treatment. If any girls were found to be receiving additional psychological or psychiatric treatment, their data starting from when they began treatment would no longer have been considered valid. However, this did not occur.

The current depression intervention study took place over five years. Girls were recruited in waves for the study each year. Therefore, girls who began the study during the first year had the opportunity to complete annual assessments for up to four years following the post-treatment assessment. Girls who began the study during the second year could complete the annual assessments for up to three years after the post-treatment assessment. Girls who began the study during the third year could complete the annual assessments for up to two years after the post-treatment assessment, and so forth.

There was attrition during the course of the study, as is common in the collection of longitudinal data. Specifically, after the post-treatment assessment (Time 2), 22 girls

along with their primary caregivers ceased participation in the study due to moving out of the school district (n = 12), no longer being interested in participating (n = 7), needing more intensive psychiatric treatment (n = 2), and requiring hospitalization (n = 1). One year following the post-treatment assessment (Time 3), two girls ended their participation in the study because they moved out of the school district. Two years after the post-treatment assessment (Time 4), two additional girls stopped participating in the study since they also moved out of the school district. Sample size estimates for the CBT and CBT+PT conditions at the follow-up time points are presented in Table 7.

Table 7

Sample Size for Data Collection Periods

		CBT	CBT+PT
Measure	Time	n	n
SMRFF-CR			
	2	44	39
	3	32	17
	4	16	9
	5	11	6
	6	5	1
SMRFF			
	2	25	22
	3	18	12
	4	7	9
	5	9	2
	6	3	0
K-SADS-P IVR			
	2	44	43
	3	31	17
	4	15	8
	5	11	5
	6	4	1

Note. Time 2 = post-treatment, Time 3 = 1 year following the post-treatment assessment, Time 4 = 2 years following the post-treatment assessment, Time 5 = 3 years following the post-treatment assessment, and Time 6 = 4 years following the post-treatment assessment. Sample sizes reported in the table for the K-SADS-P IVR reflect the number of girls for which depressive symptom data were collected at each time point.

Treatment Protocol

Cognitive-Behavioral Therapy Condition. The CBT condition involved a trained doctoral level graduate student in Educational Psychology delivering the CBT intervention to groups of approximately two to five girls during the school day. The intervention included 20 group meetings and two individual meetings. Meetings were held twice a week over 11 weeks (see Appendix L for session-by-session descriptions of treatment components and objectives). The duration of each meeting was dependent on the developmental level of the girls. The meetings for 9- and 10-year-olds lasted for 45 to 60 minutes and the meetings for girls 11 years and older lasted 45 to 75 minutes. Table 8 summarizes the child attendance data for the CBT and CBT+PT conditions at the 20 group meetings.

Table 8

Child Attendance Data

Number of CBT Sessions Attended	CBT		CBT + PT	
	n	Percent of Girls	n	Percent of Girls
12	0	0	1	2.3
13	1	2.2	1	2.3
14	0	0	0	0
15	0	0	1	2.3
16	3	6.7	1	2.3
17	1	2.2	1	2.3
18	7	15.6	9	20.9
19	6	13.3	5	11.6
20	27	60.0	24	55.8

The CBT intervention incorporated factors known for their relation to the maintenance of treatment effects in adults and adolescents, as will become apparent throughout the description of the CBT intervention. The CBT intervention was manualized to increase treatment fidelity and was based on a model of self-regulation and skills training. The ultimate goal was to help girls learn to identify negative thoughts and feelings and to use the acquired CBT skills to enhance their mood. Case conceptualizations were developed for each girl to individualize the group treatment. The core treatment components were affective education, coping skills training, problem solving training, and cognitive restructuring. Affective education assisted girls in identifying their emotional experiences and in understanding the connection between their thoughts, emotions, and behavior. Girls learned to engage in coping activities to improve their mood, when they were experiencing a negative situation that could not be changed. A systematic problem solving approach was taught to the girls for use when they were experiencing a negative situation that could be altered. Cognitive restructuring involved teaching girls to recognize their negatively distorted thoughts and change them to more positive and realistic thoughts. The didactic presentations of the core treatment components were designed to be engaging and interactive. Girls were given the opportunity to practice the CBT skills they learned in session, so therapists could monitor girls' use of the skills. In addition, practicing the skills in session was expected to increase the likelihood that girls would apply these skills outside of treatment, since they would have experienced the beneficial impact on mood resulting from their utilization of the skills.

Each year after completing CBT, girls participated in three booster sessions. The booster sessions were conducted in the original treatment groups over three consecutive weeks. The purpose of the booster sessions was to review learned coping skills and to facilitate the application of these skills to new stressors faced by the girls as part of the normal developmental process. During the booster sessions, girls also identified evidence that supported a positive sense of self and were assisted in integrating this information into their sense of self. Skills for establishing and maintaining healthy interpersonal relationships were also discussed. Attendance at booster sessions was not available at the time this dissertation was written.

Parent Training Condition. The PT component was a hybrid of traditional parent training and cognitive-behavioral family therapy. Each PT group was led by the same two student therapists, who conducted the CBT meetings with the girls, and included the caregivers of the girls in that CBT group. PT comprised eight meetings total with one meeting per week. The girls were invited to attend the PT meeting with their caregivers every other week. The meetings took place in the girls' school after hours and lasted approximately 90 minutes.

Attendance of caregivers at the PT meetings was calculated for all caregivers in the CBT+PT condition and is presented in Table 9. Of the girls in the CBT+PT condition, 46.5% (n = 20) had one (for single parent families) or both primary caregivers (two primary caregiver-headed households) attend at least one PT meeting. For 88.4% of the girls (n = 38), at least one caregiver attended one or more PT meetings. Attendance at PT

meetings for the caregiver of each girl who attended the most PT meetings was used for data analysis and is summarized in Table 10.

Table 9

Attendance for Caregivers in CBT+PT Condition

Number of PT Meetings Attended	n	Percent of Primary Caregivers
8	8	10.1
7	13	16.5
6	6	7.6
5	6	7.6
4	6	7.6
3	3	3.8
2	4	5.1
1	5	6.3
0	28	35.4

Note. This table includes all caregivers who could have attended the PT meetings.

Table 10

Attendance for Selected Caregivers in CBT+PT Condition

Number of PT Meetings Attended	n	Percent of Primary Caregivers
8	9	20.9
7	10	23.3
6	4	9.3
5	5	11.6
4	6	14.0
3	2	4.7
2	0	0.0
1	2	4.7
0	5	11.6

Note. This table includes one caregiver for each girl in the CBT+PT condition who attended the most PT meetings.

PT was intended to support the girls' treatment by teaching caregivers to help their daughters employ the therapeutic skills learned during CBT (i.e., coping skills, problem solving and cognitive restructuring) and to reinforce their daughters' use of the skills. Caregivers were encouraged to use the skills themselves. In addition, during PT, girls and their caregivers learned skills to ameliorate disturbances in family functioning and the family environment. Caregivers were taught to manage their daughter's behavior in ways that foster a positive affective environment and that relay encouraging messages to the girls about themselves. In particular, caregivers were instructed to set realistic limits and appropriate expectations and reinforce desirable behavior. In addition, caregivers were asked to decrease their use of punishment and coercive parenting strategies. Furthermore, they were taught numerous communication techniques (e.g., empathic listening) and conflict resolution skills. Participation in recreational activities as a family also was promoted during PT.

Each semester following the completion of PT, caregivers participated in booster sessions, in which they met weekly for three consecutive weeks with the two student therapists who originally conducted their PT group. The booster sessions involved a review of what was learned during PT as well as practice applying conflict resolution skills, communication skills, and family problem solving to new situations that arose. Attendance at booster sessions was not available at the time this dissertation was written.

Minimal Contact Control Condition. During the 11 week intervention, girls in the MCC condition individually completed a DSM Interview with a trained GRA every other week. While meeting with each girl, the GRA listened to the girls and empathized, but

did not provide advice or initiate treatment activities. The GRA then observed each of the girls for 15 minutes in class. Teachers were asked to monitor girls' behavior and mood in the classroom. Every other week, the GRA contacted the girls' primary caregivers to assess their perception of their daughter's mental health. Following the 11 week intervention and post-treatment assessment, girls in the MCC condition received CBT.

Training for Study Procedures

Training of Measures Administrators. The project coordinator of the larger depression intervention study trained doctoral level graduate students in Educational Psychology to administer and score the paper-and-pencil measures and to conduct the DSM Interview. Each graduate student had one year or more of experience on the research project. During the administration of measures, at least one graduate student had prior training on the assessment of suicidal ideation and intent.

Training of Interviewers. The K-SADS-P IVR was conducted by doctoral level graduate students in Educational Psychology who had completed relevant coursework in child psychopathology and formulation of psychiatric diagnoses. Each interviewer underwent approximately 50 hours of diagnostic training in the administration and scoring of the K-SADS-P IVR over a period of six months. This training was led by an advanced doctoral student with expertise on semi-structured diagnostic interviewing, who was supervised by the principal investigator of the larger depression intervention study. The training process involved rating at least six audio recorded interviews, practicing the diagnostic interview with volunteers, attending meetings in which general interview skills and differential diagnoses were discussed, and observing a live K-SADS-P IVR interview

conducted by an experienced interviewer. Before conducting interviews independently, each interviewer in training had to demonstrate competence in providing reliable symptom ratings for the K-SADS-P IVR. This was established once the graduate students could listen to an audio taped interview and accurately determine the absence, presence, and severity of mental illnesses assessed by the interview. Interviewers who had difficulty were provided with additional training until their competence in administration and scoring of the K-SADS-P IVR was established. New interviewers then administered their first interview with live supervision from a more experienced interviewer with feedback provided following the interview. All interviewers participated in weekly group supervision on administration and scoring of the interviews. Individual supervision was provided on an as-needed basis.

Training of Therapists. Nineteen doctoral level graduate students in Educational Psychology acted as therapists for the CBT and PT groups. Fifteen students fully completed the training and four students were part way through the training when the study ended. Student therapists began by completing a one year course on cognitive-behavioral therapy that included a semester of practicum experience during which time the student worked with three or four children who had a variety of disorders. Specific training to deliver the manualized CBT and PT components for this study was conducted over six months by the PI, who has extensive expertise in child psychology and CBT to treat children and adolescents with depression. Therapists received approximately 1500 hours of training prior to individually leading therapy groups. The first stage of training involved didactic sessions about the treatment manual, specific therapeutic techniques

embedded in the manual, and other issues related to implementing the treatment protocol. In the second stage of training, each doctoral student observed a more advanced therapist deliver the entire treatment protocol (i.e., 20 sessions) to a group of participants. Following, the therapist-in-training acted as a co-therapist with a more advanced therapist and delivered the 20 session treatment protocol to another group of participants. After co-leading a group, doctoral students led a group under close supervision from the PI. The therapists received weekly supervision with the PI to review taped sessions and discuss case-related issues. They also participated in bi-monthly group supervision with all therapists on the research project. The bi-monthly group supervision meetings were conducted by the PI, project coordinator, or an advanced therapist.

CHAPTER 4

Statistical Analyses

Overall Preliminary Analyses

Preliminary analyses were conducted to assess whether there were significant differences on the demographic and clinical characteristics of participants who completed post-treatment measures or discontinued participation prior to post-treatment. These results are presented below, followed by analyses to determine whether there were significant differences on the demographic and clinical variables between participants in the three experimental conditions (i.e., CBT, CBT+PT, and MCC). Preliminary analyses for specific hypothesis testing are reported within each respective hypothesis section.

Participants Who Discontinued Participation. To determine whether there were significant differences between the demographic and clinical characteristics of child and primary caregiver participants who completed post-treatment measures and those who discontinued participation before post-treatment, *t* tests for continuous data and Chi-square tests for categorical data were employed. The *t* tests revealed no significant differences in means on child age ($t(148) = .27$, p = .79) or child grade ($t(148) = -.10$, $p = .92$) between the participants who discontinued participation (age: $M = 10.59$, $SD = 1.06$; grade: $M = 5.41$, $SD = 0.87$) and those who completed the post-treatment measures (age: $M = 10.68$, $SD = 1.32$; grade: $M = 5.38$, $SD = 1.14$). The Chi-square test for child ethnicity showed that girls who discontinued participation differed significantly from the final sample of child participants on ethnicity, $\chi^2(1, N = 150) = 22.52$, $p = .001$, suggesting that the ethnic composition of the original sample was different from that of

the final sample. This is likely related to the fact that there was only one girl who self-identified as American Indian in the original sample, and she discontinued participation prior to the post-treatment assessment. While it is important to note that the ethnic composition of the original sample of child participants was slightly different from the final sample of child participants, hypothesis testing can still be conducted as planned and will not affect the results. The Chi-square test for family structure indicated that there was not a significant difference on this variable between girls who discontinued participation and those who completed the post-treatment assessment, $\chi^2(1, N = 151) = 5.65$, $p = .23$. Regarding number of diagnoses at pre-treatment, there was not a significant difference between girls who discontinued participation ($M = 1.78$, $SD = 0.88$) and those who completed the post-treatment assessment ($M = 1.77$, $SD = 0.88$), $t(149) = -0.05$, $p = .96$. There also was not a significant difference on severity of depressive symptoms at pre-treatment between girls who discontinued participation and those who completed post-treatment measures ($t(146) = 0.39$, $p = .70$; Discontinued: $M = 37.12$, $SD = 7.23$; Completed: $M = 38.02$, $SD = 8.69$).

For primary caregivers that completed measures, Chi-square tests revealed that there was a significant difference between those who discontinued participation versus those who completed the post-treatment assessment on gender ($\chi^2(1, N = 141) = 3.92$, $p = .05$), but not on ethnicity ($\chi^2(1, N = 141) = 5.70$, $p = .46$) or educational status ($\chi^2(1, N = 141) = 4.72$, $p = .58$). Related to the gender difference, there were more maternal caregivers and less paternal caregivers among those who completed the post-treatment assessment (Maternal: 90.5%; Paternal: 9.5%) compared to the original sample of

primary caregiver participants (Maternal: 88.7%, Paternal: 11.3%). While this difference is important to note, analyses can still be conducted as planned and will not impact the results.

For caregivers in the CBT+PT condition, Chi-square tests indicated that there were not significant differences between those who did and did not discontinue participation prior to the post-treatment assessment on gender ($\chi^2(1, N = 89) = 0.07$, $p = .79$) or educational status ($\chi^2(1, N = 89) = 10.52$, $p = .10$). However, there was a significant difference on ethnicity ($\chi^2(1, N = 89) = 13.80$, $p = .01$). Although the ethnic composition of the caregivers who discontinued participation varied from that of the caregivers who did not discontinue participation, analyses can still be conducted as planned and will not influence the results.

Final Sample of Participants. To determine whether the final sample of girls and primary caregivers who completed measures in the three experimental conditions (i.e., CBT, CBT+PT, MCC) had significant differences on demographic and clinical characteristics, analysis of variance (ANOVA) for continuous data and Chi-square tests for categorical data were used.

The results of the ANOVA for child age indicated that there was not a significant difference between means for girls in the three conditions on this variable, $F(2,130) = 0.49$, $p = .62$. The results of the ANOVA for child grade showed that means for the three groups were not significantly different, $F(2, 130) = 0.62$, $p = .54$. The Chi-square test for child ethnicity indicated that girls in the three conditions did not differ significantly on this variable, $\chi^2(1, N = 133) = 8.58$, $p = .38$. The Chi-square test for family structure

showed that girls in the three conditions also did not differ significantly in terms of their family structure, $\chi^2(1, N = 133) = 7.83$, $p = .45$. Means for level of depressive symptoms at pre-treatment for girls in the three conditions were not statistically different, $F(2,129) = 0.72$, $p = .49$. Means for number of diagnoses at pre-treatment also did not differ significantly between girls in the three conditions, $F(2, 130) = 1.69$, $p = .19$. Table 11 presents means and standard deviations for girls in the three conditions for the child demographic variables of age and grade as well as for clinical characteristics.

Table 11

Child Demographic and Clinical Characteristics by Condition

	CBT		CBT+PT		MCC	
	M	*SD*	*M*	*SD*	*M*	*SD*
Age	10.52	1.21	10.80	1.34	10.71	1.42
Grade	5.23	1.10	5.45	1.09	5.47	1.24
Depressive Symptoms at Baseline	38.91	9.90	36.74	7.18	38.36	8.79
Number of Diagnoses at Baseline	1.93	0.86	1.63	0.73	1.73	0.78

Of the primary caregivers who completed measures, the Chi-square tests revealed no significant differences between caregivers in the three conditions on gender ($\chi^2(1, N = 126) = 1.80, p = .41$), ethnicity ($\chi^2(1, N = 126) = 11.37, p = .50$), or educational status ($\chi^2(1, N = 126) = 11.17, p = .51$).

Main Analyses

Hypothesis 1

Hypothesis 1 predicted that girls in the CBT+PT condition would report lower levels of depressive symptoms relative to girls in the CBT only condition from post-treatment through the annual follow-up assessments, which lasted up to four years post-treatment.

Hypothesis 1 Preliminary Analyses. For the growth curve modeling analysis in Hypothesis 1, data were inspected to determine whether assumptions for the individual growth model, unconditional between-subjects model, and conditional between-subjects model were met (Tate, 1998). The assumptions for the individual growth model are that the residuals are normally and independently distributed with a mean of zero and a constant variance. The individual growth trajectories were inspected to identify violations of these assumptions. The assumptions for the unconditional between-subjects model are that the residuals are independently sampled from a bivariate normal distribution with a mean of zero and a constant variance-covariance matrix. Histograms of the estimated residuals of the unconditional model were examined to search for outliers and violations of these assumptions. The assumptions of the conditional between-subjects model are that the residuals are independently sampled from a bivariate normal distribution with a mean

of zero and a constant variance-covariance matrix. Plots of estimated residuals from the conditional model were examined to look for outliers and violations of these assumptions.

To provide a general understanding of the pattern of the data, Table 12 lists means and standard deviations for depressive symptoms of girls in the CBT and CBT+PT conditions at Time 2 (post-treatment), Time 3 (one year following treatment), Time 4 (two years following treatment), Time 5 (three years following treatment), and Time 6 (four years following treatment). This table also includes an enumeration of the sample size at the different assessment points.

Table 12

Descriptive Statistics for Girls' Depressive Symptoms

	CBT			CBT + PT		
Time	n	*M*	*SD*	n	*M*	*SD*
2	44	24.50	6.52	43	25.23	6.59
3	31	27.45	8.99	17	27.71	10.42
4	15	20.47	5.93	8	20.75	4.13
5	11	24.72	11.27	5	22.80	3.49
6	4	25.00	7.42	1	39.00	

Hypothesis 1 Main Analyses. Growth curve modeling using Hierarchical Linear Models (HLM) was utilized to assess change in depressive symptoms from post-treatment through the annual follow-up assessments for girls in the two treatment conditions (i.e.,

CBT+PT and CBT). HLM has numerous advantages over more traditional methods in the assessment of change (see Bryk & Raudenbush, 1987; Rogosa et al., 1982; Rogosa & Willett, 1985, for review). A straightforward approach to conceptualizing growth curve models is as two levels of analysis (Bryk & Raudenbush; Singer & Willett, 2003). The level 1 model represents the intra-individual change model and is referred to as the within-subject model. This model reflects individual growth rates and is formulated as linear or non-linear (i.e., a polynomial of any degree) depending on the trend of individual growth curves. Time-varying predictors, such as time elapsed since treatment, can be incorporated into the level 1 model. The level 2 model represents inter-individual change and is referred to as the between-subjects model. This model captures variability between participants in growth rates and intercept. Time-invariant predictors, such as treatment condition, can be included in the level 2 model. While it is helpful to conceptualize the model in this multi-level framework, the ultimate model that is tested is a single integrated model (Singer & Willett). The integrated model is formed by substituting the level 2 model into the level 1 model. A fundamental early step in individual growth curve modeling is to determine whether variability in the growth curves in terms of intercept and slope exists in the unconditional model, which does not include level 2 predictors. After establishing that there is significant variability, the level 2 model can be expanded to a conditional model that includes one or more time invariant predictors. Of importance, the identification of a meaningful metric for the time variable is beneficial for interpretation (Biesanz, Deeb-Sossa, Papadakis, Bollen, & Curran, 2004). In the current study, time represented time elapsed since treatment with the zero point

corresponding to post-treatment (i.e., 2 was subtracted from each time point). Thus, the intercept estimates are interpreted as status of girls' depressive symptoms at post-treatment.

For the analysis of Hypothesis 1, individual growth trajectories (plots of depressive symptoms over time) for many girls were inspected to determine the functional form of the growth model (i.e., linear versus non-linear). This inspection revealed both linear and quadratic trends in individual growth curve trajectories. Therefore, linear and quadratic individual growth models that consisted of the intercept (i.e., status of girls' depressive symptoms at post-treatment) as a function of time were specified. The unconditional linear growth model was:

$$\text{Level 1 Model: } Y_{ti} = \pi_{0i} + \pi_{1i}(time_{ti}) + e_{ti}$$

$$\text{Level 2 Model: } \pi_{0i} = \beta_{00} + r_{0i}$$

$$\pi_{1i} = \beta_{10} + r_{1i}$$

The unconditional quadratic growth model was:

$$\text{Level 1 Model: } Y_{ti} = \pi_{0i} + \pi_{1i}(time_{ti}) + \pi_{2i}(time_{2i})^2 + e_{ti}$$

$$\text{Level 2 Model: } \pi_{0i} = \beta_{00} + r_{0i}$$

$$\pi_{1i} = \beta_{10} + r_{1i}$$

$$\pi_{2i} = \beta_{20} + r_{2i}$$

To determine the model specification that best captures the average trend of girls' depressive symptoms over time, the aforementioned models were compared with a Chi-square test that evaluated the difference in -2 log likelihood (deviance statistics) and number of parameters being estimated between the models. The *df* for the test reflected

the restrictions (e.g., non-estimated parameters between the models). The quadratic unconditional growth model with random effects better fit the data than the linear model with random effects. The intercept estimate for the unconditional quadratic growth model was 25.20, $SE = 0.72$, $t(86) = 34.89$, $p < .001$, suggesting that on average girls' level of depressive symptoms at post-treatment was 25.20. An evaluation of whether there was between-subject variation in the coefficients estimating intercept and growth rates indicated that there was between-subject variation in intercept ($\chi^2 = 36.19$, $df = 23$, $p = .04$) and the quadratic component of the slope ($\chi^2 = 36.19$, $df = 23$, $p = .04$), but not in the linear component of the slope ($\chi^2 = 31.96$, $df = 23$, $p = .10$). Therefore, a comparison of deviance statistics and number of parameters being estimated using a Chi-square test was conducted to determine whether an unconditional quadratic growth curve model with random effects for intercept, linear slope, and quadratic slope or an unconditional quadratic growth curve model with random effects for intercept and quadratic slope and a fixed effect for linear slope was a better fit for the data. The Chi-square test revealed that the unconditional quadratic growth curve model with random effects for intercept, linear slope, and quadratic slope provided better model fit.

The unconditional quadratic growth curve model was then expanded to include the time-invariant predictor of treatment condition (0 = CBT, 1 = CBT+PT) to determine whether treatment condition explains variability in girls' level of depressive symptoms at post-treatment and growth rates. The coefficients for the model including treatment condition as an explanatory variable did not yield any significant results as can be seen in Table 13. Therefore, these results will not be discussed further.

Table 13

Estimated Fixed Effects for Hypothesis 1

Fixed Effect	Estimated Parameter	*SE*	*df*	*t*	*p*
Intercept					
Intercept	24.93	1.02	85	24.45	.00
Condition	0.55	1.46	85	0.38	.71
Linear Slope					
Intercept	1.98		85	0.89	.38
Condition	-0.86		85	-0.23	.82
Quadratic Slope					
Intercept	-1.06		85	-1.36	.18
Condition	0.44		85	0.33	.74

However, as featured in Table 14, the variances of residuals for intercept and quadratic slope were significant and for linear slope were marginally significant, indicating that further modeling of individual growth curve variations with additional explanatory variables is warranted.

Table 14

Estimated Variance Components for Hypothesis 1

Random Effect	Estimated Parameter Variance	χ^2	*df*	*p*
Intercept	12.89	36.43	22	.03
Linear Slope	69.12	32.82	22	.06
Quadratic Slope	9.48	46.53	22	.00

Hypothesis 1 Secondary Analyses. In an attempt to explain variability in girls' growth curves, two additional growth curve analyses were conducted: one evaluating child attendance at CBT meetings as an explanatory variable for girls' depressive symptoms over time and another assessing parental attendance at PT meetings as a predictor for depressive symptoms of girls in the CBT+PT condition only. For the first growth curve analysis involving the inclusion of child attendance at CBT meetings as a predictor for girls' depressive symptoms, the unconditional quadratic growth curve model described previously remained unchanged. Child attendance was a continuous variable with a possible range of 0 to 20 sessions, but in actuality ranged from 12 to 20 sessions. Child attendance explained significant variability in girls' rate of change in depressive symptoms (i.e., linear and quadratic components of slope), as seen in Table 15.

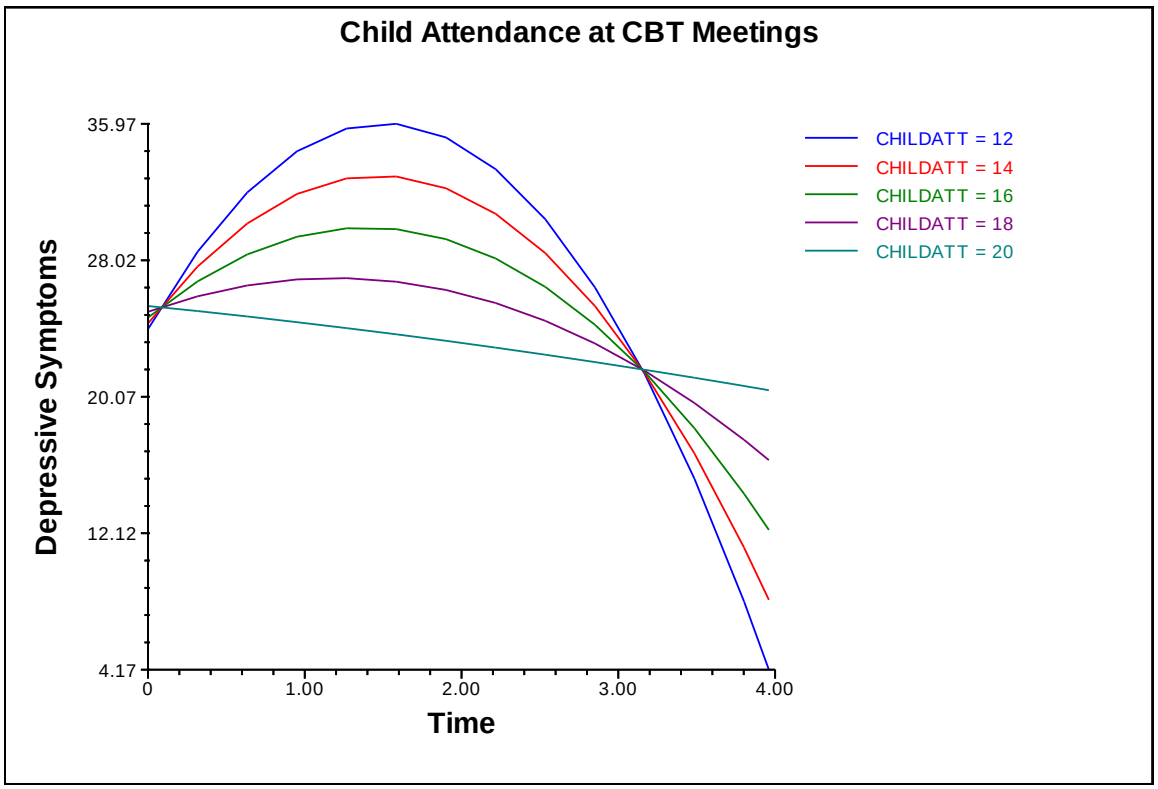
Table 15

Estimated Fixed Effects for Hypothesis 1 Child Attendance

Fixed Effect	Estimated Parameter	*SE*	*df*	*t*	*p*
Intercept					
Intercept	21.99	6.24	85	3.53	.001
Child Attendance	0.17	0.33	85	0.50	.62
Linear Slope					
Intercept	41.17	18.14	85	2.27	.03
Child Attendance	-2.10	0.94	85	-2.23	.03
Quadratic Slope					
Intercept	-13.09	6.40	85	-2.05	.04
Child Attendance	0.65	0.33	85	1.95	.05

Considering the complexity of nonlinear growth models, graphical representations often offer the best way to describe the nature of significant effects in the conditional between-subjects model. Figure 2 presents the average growth curve trajectories for girls with differential attendance at the CBT meetings (i.e., attendance at 12, 14, 16, 18 and 20 CBT meetings).

Figure 2. Predicted Girls' Depressive Symptoms as a Function of Child Attendance.



Note. Time ranges from 0 - 4 with 0 representing post-treatment and each subsequent number reflecting the amount of years since treatment.

This graph shows that on average girls who attended all CBT sessions experienced a steady decline in depressive symptoms over time; whereas, girls who attended less than 20 sessions on average had increasingly higher re-emerging levels of depressive symptoms as time progressed. All girls, on average, experienced a reduction in depressive symptomatology towards the end of the study. It is important to note that parameters estimating girls' growth curves towards the end of the study (i.e., time 3 and time 4) are based on substantially less data due to attrition.

To assess whether additional variability in growth curves remained after including child attendance as an explanatory variable in the model, the variances of residuals for intercept, linear slope, and quadratic slope and their corresponding Chi-square tests were inspected. There was significant variance of residuals for intercept and the quadratic component of slope, but not for the linear component of slope as shown in Table 16. Thus, subsequent modeling of growth curve variations with other explanatory variables of interest could be beneficial in further explaining girls' depressive symptom growth curves.

Table 16

Estimated Variance Components for Hypothesis 1 Child Attendance

Random Effect	Estimated Parameter Variance	χ^2	*df*	*p*
Intercept	11.47	34.82	22	.04
Linear Slope	42.85	28.22	22	.17
Quadratic Slope	6.55	38.93	22	.01

Another secondary analysis that was conducted to attempt to explain variability in girls' growth curves involved assessing whether parental attendance at PT meetings served as a predictor of depressive symptoms of girls in the CBT+PT condition. The rationale behind this analysis is that within the CBT+PT condition, primary caregivers' attendance at PT meetings varied from 0 to 8 sessions. The predicted pattern in

depressive symptoms over time for girls whose primary caregivers were in the CBT+PT condition may not have been apparent in the main analysis due to primary caregivers with differential attendance at PT meetings being combined into one group for that analysis. Thus, a more careful evaluation of whether parental attendance at PT meetings was related to girls' growth curves is an interesting area of exploration that could provide additional information about the impact of including primary caregivers in girls' treatment for depression. For this analysis, as stated previously, only girls in the CBT+PT condition were included. Parental attendance was determined by selecting the attendance data for the primary caregiver of each girl who attended the most PT sessions. Parental attendance was a continuous variable that ranged from 0 to 8 sessions attended by at least one primary caregiver. The model specification procedure, in which increasingly complex models were evaluated to determine the one that best fits the data, revealed that a quadratic functional form was most appropriate for this analysis. Therefore, an unconditional quadratic growth curve model was created and tested. The intercept estimate for this model was 25.48, $SE = 1.01$, $t(42) = 25.27$, $p < .001$, suggesting that on average girls' level of depressive symptoms at post-treatment was 25.48. The evaluation of whether between-subject variation existed in the coefficients for intercept, linear slope, and quadratic slope that could be modeled showed that there was significant between-subject variability in the linear component of slope ($\chi^2 = 17.89$, $df = 8$, $p = .02$) and the quadratic component of slope ($\chi^2 = 27.92$, $df = 8$, $p = .001$), but not in intercept ($\chi^2 = 13$, $df = 8$, $p = .13$). A conditional quadratic growth curve model was then formulated that included parental attendance as a predictor variable. Results from this analysis

demonstrated that parental attendance was significantly related to the intercept and girls' rate of change (i.e., quadratic component of slope) as shown in Table 17.

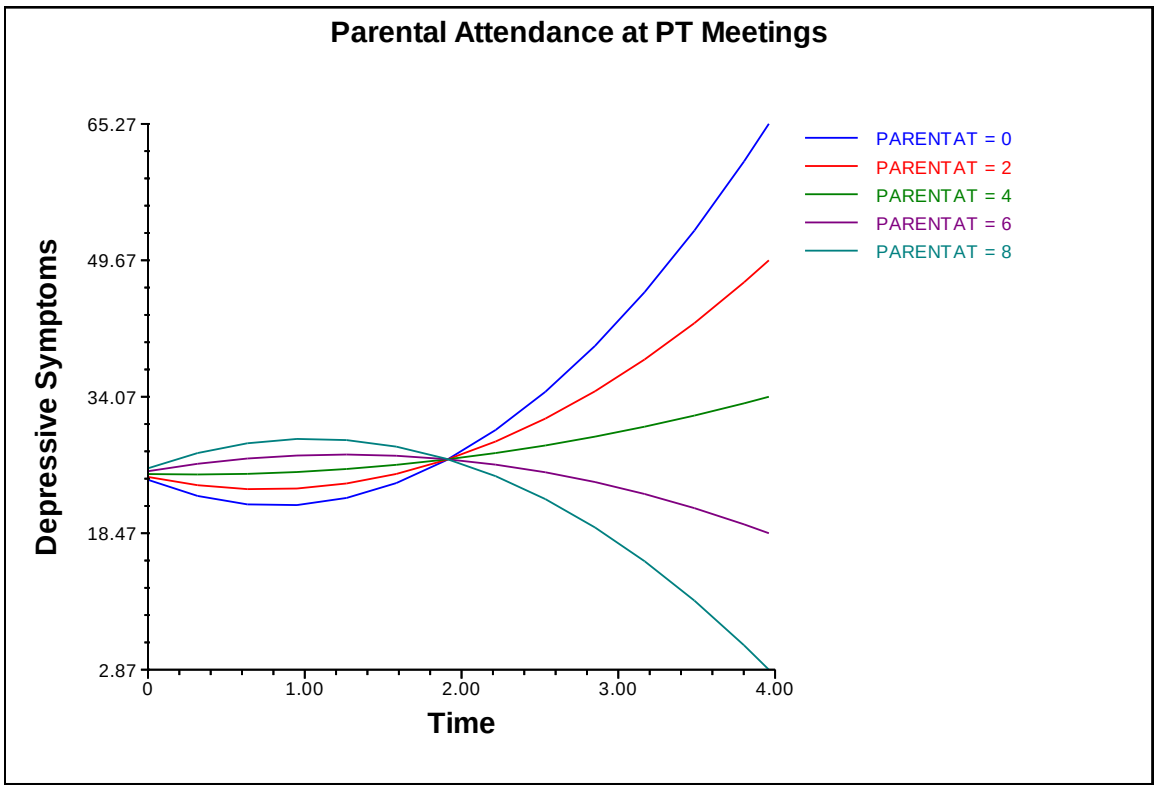
Table 17

Estimated Fixed Effects for Hypothesis 1 Parental Attendance

Fixed Effect	Estimated Parameter	*SE*	*df*	*t*	*p*
Intercept					
Intercept	24.58	1.73	41	14.21	.00
Parental Attendance	0.16	0.34	41	0.48	.64
Linear Slope					
Intercept	-7.24	3.39	41	-2.13	.04
Parental Attendance	1.71	0.93	41	1.84	.07
Quadratic Slope					
Intercept	4.42	1.14	41	3.89	.00
Parental Attendance	-0.94	0.31	41	-3.03	.01

A graphic representation of the data is presented in Figure 3 and shows the growth curve trajectories for depressive symptoms of girls in the CBT+PT condition whose parents attended 0, 2, 4, 6, and 8 PT meetings.

Figure 3. Predicted Girls' Depressive Symptoms as a Function of Parental Attendance



Note. Time ranges from 0 - 4 with 0 representing post-treatment and each subsequent number reflecting the amount of years since treatment.

This graph illustrates that, on average, girls whose primary caregivers attended more PT sessions had a slight increase in depressive symptoms following post-treatment, but generally followed a negative trajectory in which depressive symptoms continued to decline over time. In contrast, depressive symptoms of girls whose primary caregivers attended less PT sessions decreased slightly initially but generally increased as time progressed. Of noteworthy importance, parameters estimating girls' growth curves towards the end of the study (i.e., time 3 and time 4) are based on substantially less data due to attrition.

To determine whether additional variability in growth curves remained after including parental attendance at PT meetings as an explanatory variable in the model, the variances of residuals for intercept, linear slope, and quadratic slope and their corresponding Chi-square tests were inspected. There was significant variance of residuals for the linear and quadratic components of slope, but not for the intercept as shown in Table 18. Thus, additional modeling of individual growth variations with clinically relevant explanatory variables could be helpful in providing more information about girls' growth curve trajectories.

Table 18

Estimated Variance Components for Hypothesis 1 Parental Attendance

Random Effect	Estimated Parameter Variance	χ^2	*df*	*p*
Intercept	21.46	13.21	7	.07
Linear Slope	52.81	17.06	7	.02
Quadratic Slope	8.43	24.21	7	.00

Considering the importance of parental attendance in explaining variability in the rate of change of girls' depressive symptoms, demographic characteristics (i.e., ethnicity, educational status, and family structure) of the primary caregiver for each girl that attended the most PT meetings were explored, but did not reveal any noticeable patterns. Demographic data for these primary caregivers is presented in Table 19.

Table 19

Demographic Characteristics of Primary Caregivers by Attendance

Attendance	Demographic Variable	n	Percent
0 PT Meetings		5	
	Ethnicity		
	White Hispanic	4	80
	African American	1	20
	Educational Status		
	Unknown	5	100
	Family Structure		
	Intact Family	4	80
	Stepfamily	1	20
1-3 PT Meetings		5	
	Ethnicity		
	White NonHispanic	3	60
	White Hispanic	1	20
	Unknown	1	20
	Educational Status		
	Some high school	1	20
	Finished high school/GED	1	20

Table 19, cont.

Attendance	Demographic Variable	n	Percent
	Some college/junior college	2	40
	Unknown	1	20
	Family Structure		
	Intact Family	1	20
	Single Parent Family	3	60
	Multi-Adult Household	1	20
4-6 PT Meetings		16	
	Ethnicity		
	White NonHispanic	8	50
	White Hispanic	5	31
	African American	2	13
	Asian	1	6
	Educational Status		
	Finished high school/GED	3	19
	Some college/junior college	5	31
	Finished 4-year college	1	6
	Advanced degree	1	6
	Unknown	6	38

Table 19, cont.

Attendance	Demographic Variable	n	Percent
	Family Structure		
	Intact Family	8	50
	Stepfamily	2	13
	Single Parent Family	3	19
	Multi-Adult Household	3	19
7-8 PT Meetings		17	
	Ethnicity		
	White NonHispanic	11	65
	White Hispanic	3	18
	African American	2	12
	Unknown	1	6
	Educational Status		
	Finished high school/GED	1	6
	Some college/junior college	6	35
	Finished 4-year college	3	18
	Advanced degree	3	18
	Unknown	4	24

Table 19, cont.

Attendance	Demographic Variable	n	Percent
	Family Structure		
	Intact family	9	53
	Stepfamily	3	18
	Single Parent Family	3	18
	Multi-Adult Household	2	12

Hypothesis 2A

Hypothesis 2A predicted that change from pre-treatment to post-treatment in ratings of the family functioning variables of conflict, cohesion, communication, and family sociability by girls in the CBT, CBT+PT, and MCC conditions would be different across study conditions. Assuming a significant interaction between study condition and time, at post-treatment, girls in the CBT+PT condition were predicted to report less conflict and more cohesion, communication, and family sociability than girls in the CBT only and MCC conditions. There was not expected to be a difference in ratings of these family functioning variables between girls in the CBT only and MCC conditions at post-treatment.

Hypothesis 2A Preliminary Analyses. Preliminary analyses were conducted to determine whether the data met the assumptions necessary to perform two-way repeated measures ANOVAs. The study circumstances were designed to ensure that observations

were independent between and within groups. Levene's Test of Equality of Error Variances was used to determine whether there were equal population variances for each group (i.e., CBT, CBT+PT, and MCC) on the dependent variables at pre- and post-treatment. For conflict, the variances of the three groups were not statistically different at pre-treatment ($F(2, 122) = 1.87$, $p = .16$) or at post-treatment ($F(1,122) = 2.12$, $p = .124$). A square root transformation was conducted for the conflict variable as will be described below. For conflict with the square root transformation, the variances of the three groups were not statistically different at pre-treatment ($F(2,122) = 1.31$, $p = .27$) or at post-treatment ($F(2,122) = 2.18$, $p = .12$). For cohesion, the variances of the three groups were not statistically different at pre-treatment ($F(2,120) = 1.67$, $p = .19$) or at post-treatment ($F(2,120) = 1.47$, $p = .23$). For communication, the variances of the groups were not statistically different at pre-treatment ($F(2,117) = .04$, $p = .96$) or at post-treatment ($F(2,117) = .00$, $p = .10$). For sociability, the variances of the groups were not statistically different at pre-treatment ($F(2,122) = 1.01$, $p = .37$) or at post-treatment ($F(2,122) = 0.08$, $p = .92$). The sphericity assumption is often tested when using repeated measures ANOVA, but sphericity can only be evaluated when there are more than two time points being compared (Field, 2005). Because the analysis for this hypothesis only included two time points, sphericity could not be tested. To assess whether scores on the dependent variables (i.e., conflict, cohesion, communication, and family sociability) were normally distributed, z-scores for skewness and kurtosis were calculated for each dependent variable and inspected for each group (i.e., CBT, CBT+PT, and MCC) at pre-treatment and at post-treatment. Z-scores for skewness and kurtosis that were below the absolute

value of 3.29 were considered acceptable for meeting the assumption of normality (Field, 2005). All z-scores for skewness and kurtosis were below the pre-determined value and satisfied the assumption of normality, except for conflict in the CBT+PT condition at pre-treatment. Therefore, a square root transformation was conducted for the conflict variable at pre- and post-treatment. This resulted in acceptable values of skewness and kurtosis for the conflict variable. Table 20 presents the skewness and kurtosis data for this hypothesis.

Table 20

Skewness and Kurtosis for Hypothesis 2A

	CBT		CBT+PT		MCC	
	Skewness	Kurtosis	Skewness	Kurtosis	Skewness	Kurtosis
Conflict						
Time 1	2.08	-0.21	3.69	4.49	1.83	-0.19
Time 2	1.02	-0.94	1.43	-0.39	2.46	0.75
ConflictSqRt Transformation						
Time 1	.47	-1.24	1.24	0.42	-0.78	0.20
Time 2	-1.92	-0.59	-1.89	1.63	-1.29	-0.12
Cohesion						
Time 1	-0.39	1.59	-0.04	-1.31	-0.72	-1.42
Time 2	0.50	-1.40	-1.77	-0.31	-0.41	-1.37
Communication						
Time 1	-1.03	-1.05	1.00	-1.19	0.79	-1.19
Time 2	0.92	-1.09	-0.52	0.84	0.86	-1.22
Sociability						
Time 1	-0.24	-0.88	-0.25	-0.88	0.76	-1.28
Time 2	0.20	-1.10	-0.80	-1.42	1.58	-0.61

Note. Skewness and kurtosis values presented in this table are z-scores. Time 1 represents pre-treatment and Time 2 represents post-treatment.

Hypothesis 2A Main Analyses. Separate two-way repeated measures ANOVAs were conducted for girls' ratings of each of the family functioning variables (i.e., conflict, cohesion, communication, and family sociability) to test whether ratings of these family functioning variables changed differently from pre-treatment to post-treatment in the three groups (i.e., CBT, CBT+PT, and MCC). Prior to running each analysis, *t* tests were used to decipher whether there were differences between the three groups on the family functioning variable ratings at pre-treatment. There were no significant differences between the groups on any of the ratings at pre-treatment.

A two-way repeated measures ANOVA for girls' ratings of conflict was run both with and without the square root transformation. The two-way repeated measures ANOVA for girls' ratings of conflict without the square root transformation did not yield any significant results. Because the original conflict ratings failed to meet the assumption of normality, findings from the two-way repeated measures with the square root transformation are presented below. The two-way repeated measures ANOVA did not reveal a significant interaction between study condition and time, $F(2,122) = 0.41$, $p = .66$, partial eta squared = .01 (see Table 21). There also was not a main effect of study condition ($F(2,122) = 1.15$, $p = .32$, partial eta squared = .01), but there was a main effect of time, ($F(1,122) = 6.04$, $p = .02$, partial eta squared = .05). This finding suggests that when averaging across girls' ratings of conflict in the three study conditions there was a significant difference in means of conflict ratings with the square root transformation from pre-treatment to post-treatment. As illustrated in Figure 4 and Table 22, the means

of girls' ratings of conflict in all conditions decreased from pre-treatment to post-treatment.

Table 21

Within-Subjects Effects for Girls' Conflict Ratings

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*
Time	2.61	1	2.61	6.04	.02
Time* Condition	0.36	2	0.18	0.41	.66
Error (Time)	52.79	122	0.43		

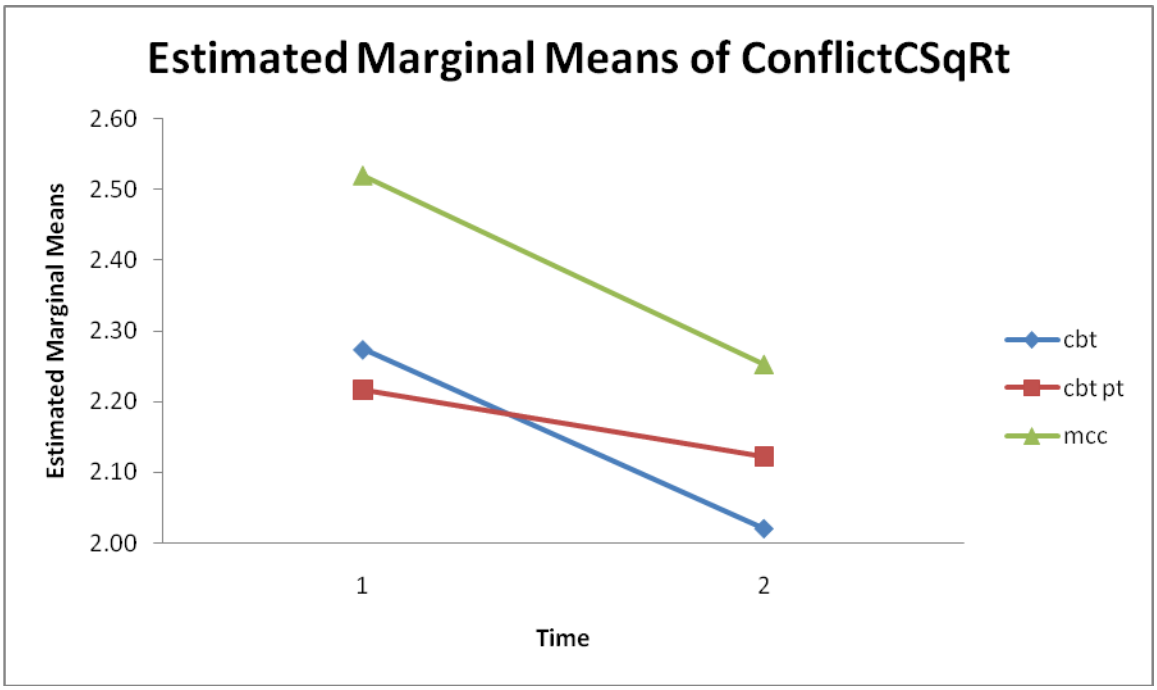
Table 22

Descriptive Statistics for Girls' Conflict Ratings

Condition	Time	*M*	*SD*
CBT	1	2.27	0.81
	2	2.02	1.09
CBT+PT	1	2.22	0.72
	2	2.15	0.80
MCC	1	2.52	0.91
	2	2.25	1.15

Note. The descriptive statistics presented in this table are for the square root transformation of conflict ratings at pre- and post-treatment.

Figure 4. Girls' Ratings of Conflict from Pre- to Post-Treatment.



The two-way repeated measures ANOVA for girls' ratings of cohesion revealed a significant interaction between study condition and time, $F(2, 120) = 3.37$, $p = .04$, partial eta squared = .05 (see Table 23). One-way repeated measures ANOVAs were then conducted for each treatment condition. The one-way repeated measures ANOVA was significant for the CBT+PT group ($F(1,36) = 5.02$, $p = .03$), but not for the CBT only group ($F(1,42) = 1.64$, $p = .21$) or the MCC group ($F(1,42) = 1.68$, $p = .20$), indicating that on average girls' ratings of cohesion were significantly different from pre- to post-treatment for the CBT+PT group but not for the other groups. Independent samples *t* tests were run to determine whether there were significant differences between girls' cohesion ratings at post-treatment. There were not significant differences between the post-treatment ratings of cohesion by girls in the CBT and CBT+PT groups ($t(81) = -0.41$, $p = .69$), the CBT and MCC groups ($t(86) = 1.59$, $p = .12$), or the CBT+PT and MCC groups ($t(81) = 1.77$, $p = .08$). However, as demonstrated in Figure 5, the observed trend was that on average girls' ratings of cohesion increased in the CBT and CBT+PT groups from pre- to post-treatment and decreased in the MCC group. Table 24 shows that means at post-treatment were highest in the CBT+PT group ($M = 26.46$, $SD = 7.07$), followed by the CBT group ($M = 25.89$, $SD = 5.80$), and lowest in the MCC group ($M = 23.66$, $SD = 7.28$).

Table 23

Within-Subjects Effects for Girls' Cohesion Ratings

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*
Time	42.98	1	42.98	2.30	.13
Time* Condition	125.96	2	62.98	3.37	.04
Error (Time)	2242.12	120	18.68		

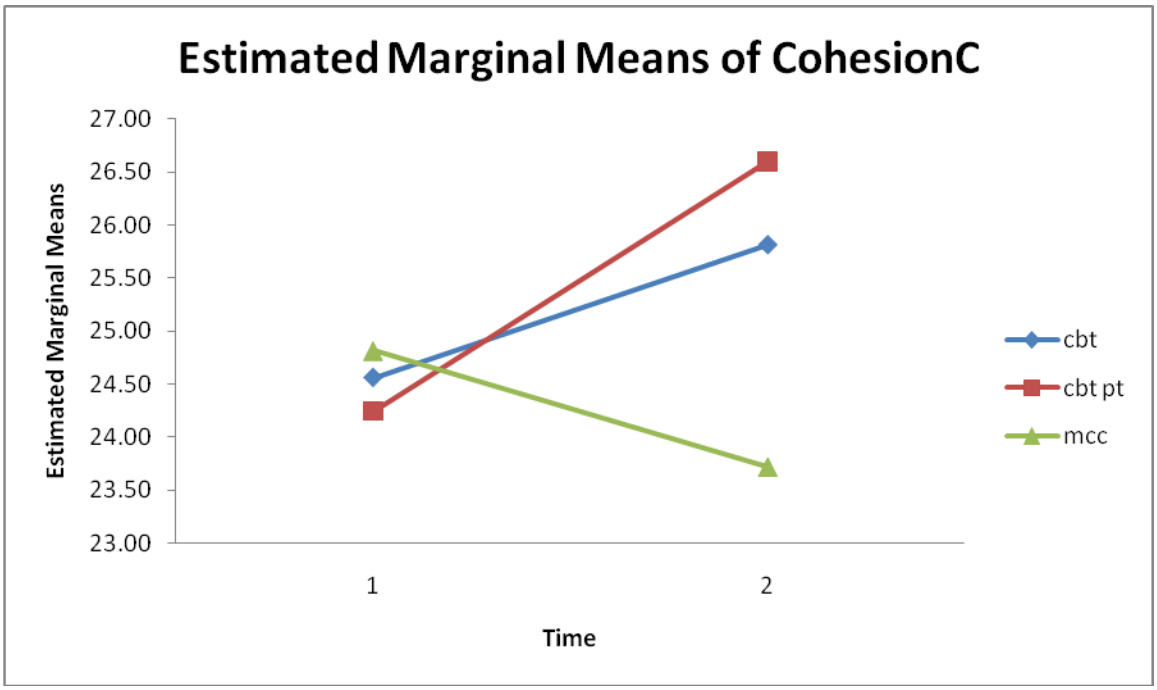
Table 24

Descriptive Statistics for Girls' Cohesion Ratings

Condition	Time	*M*	*SD*
CBT	1	24.77	6.34
	2	25.89	5.80
CBT+PT	1	24.52	5.94
	2	26.46	7.07
MCC	1	24.82	7.34
	2	23.66	7.28

Note. Time 1 and time 2 represent pre-treatment and post-treatment, respectively.

Figure 5. Girls' Ratings of Cohesion from Pre- to Post-Treatment.



The two-way repeated measures ANOVA for girls' ratings of communication revealed a significant interaction between study condition and time, $F(2, 117) = 4.99$, $p = .01$, partial eta squared = .08 (see Table 25). One-way repeated measures ANOVAs were then conducted for each study condition. The one-way repeated measures ANOVA was significant for the CBT+PT group ($F(1,36) = 11.41$, $p = .002$), but not for the CBT only group ($F(1,41) = .00$, $p = .96$) or the MCC group ($F(1,40) = 0.81$, $p = .37$), showing that on average girls' ratings of communication were significantly different from pre- to post-treatment for the CBT+PT group but not for the other groups. Independent samples *t* tests were run to determine whether there were significant differences between girls' communication ratings at post-treatment. There was a significant difference between post-treatment mean ratings of communication between girls in the CBT+PT and MCC groups ($t(77) = 2.67$, $p = .01$), but not between girls in the CBT and CBT+PT groups ($t(78) = -1.79$, $p = .08$) or in the CBT and MCC groups ($t(83) = 0.90$, $p = .37$). Figure 6 displays girls' mean communication ratings from pre- to post-treatment in the three conditions. On average, girls' mean ratings of communication decreased from pre- to post-treatment for the CBT and MCC groups and increased for the CBT+PT group (see Table 26).

Table 25

Within-Subjects Effects for Girls' Communication Ratings

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*
Time	67.56	1	67.56	2.38	.13
Time* Condition	283.14	2	141.57	4.99	.01
Error (Time)	3321.71	117	28.39		

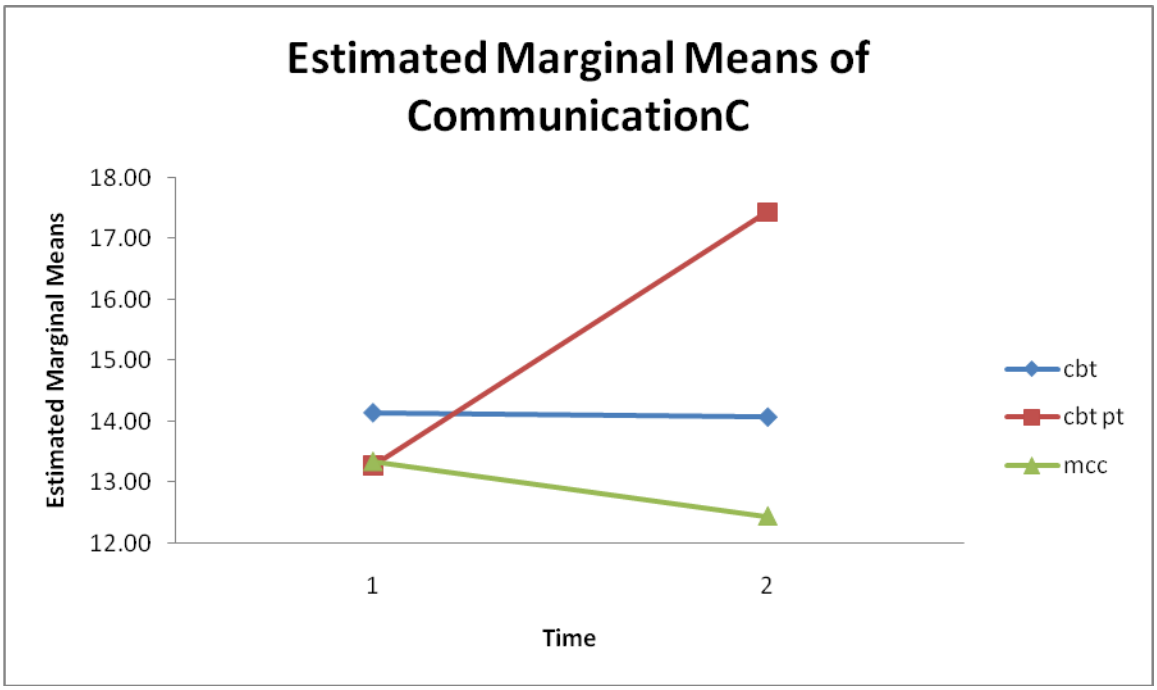
Table 26

Descriptive Statistics for Girls' Communication Ratings

Condition	Time	*M*	*SD*
CBT	1	14.14	7.33
	2	14.07	8.57
CBT+PT	1	13.27	7.62
	2	17.43	8.53
MCC	1	13.34	7.36
	2	12.44	8.44

Note. Time 1 and time 2 represent pre-treatment and post-treatment, respectively.

Figure 6. Girls' Ratings of Communication from Pre- to Post-Treatment.



The two-way repeated measures ANOVA for girls' ratings of family sociability revealed a significant interaction between study condition and time, $F(2, 122) = 3.51$, $p = .03$, partial eta squared = .05 (see Table 27). One-way repeated measures ANOVAs were then conducted for each study condition. The one-way repeated measures ANOVA was significant for the CBT group ($F(1,41) = 4.6$, $p = .04$) and the CBT+PT group ($F(1,37) = 5.84$, $p = .02$), but not for the MCC group ($F(1,44) = 0.82$, $p = .37$), showing that on average girls' ratings of sociability were significantly different from pre- to post-treatment for the CBT+PT and CBT only conditions but not for the MCC condition. Independent samples *t* tests were run to determine whether there were significant differences on sociability ratings between girls in the three conditions at post-treatment. There were not significant differences between the mean post-treatment ratings of sociability by girls in the CBT+PT and MCC groups ($t(82) = 1.74$, $p = .09$), in the CBT and CBT+PT groups ($t(80) = -0.05$, $p = .96$), or in the CBT and MCC groups ($t(86) = 1.74$, $p = .08$). Figure 7 displays girls' sociability ratings from pre- to post-treatment for the three conditions. On average, sociability ratings of girls in the CBT and CBT+PT conditions increased from pre- to post-treatment with the highest post-treatment mean for the CBT+PT condition, and decreased from pre- to post-treatment for the MCC condition (see Table 28).

Table 27

Within-Subjects Effects for Girls' Sociability Ratings

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*
Time	102.83	1	102.83	4.91	.03
Time* Condition	146.96	2	73.48	3.51	.03
Error (Time)	2555.04	122	20.94		

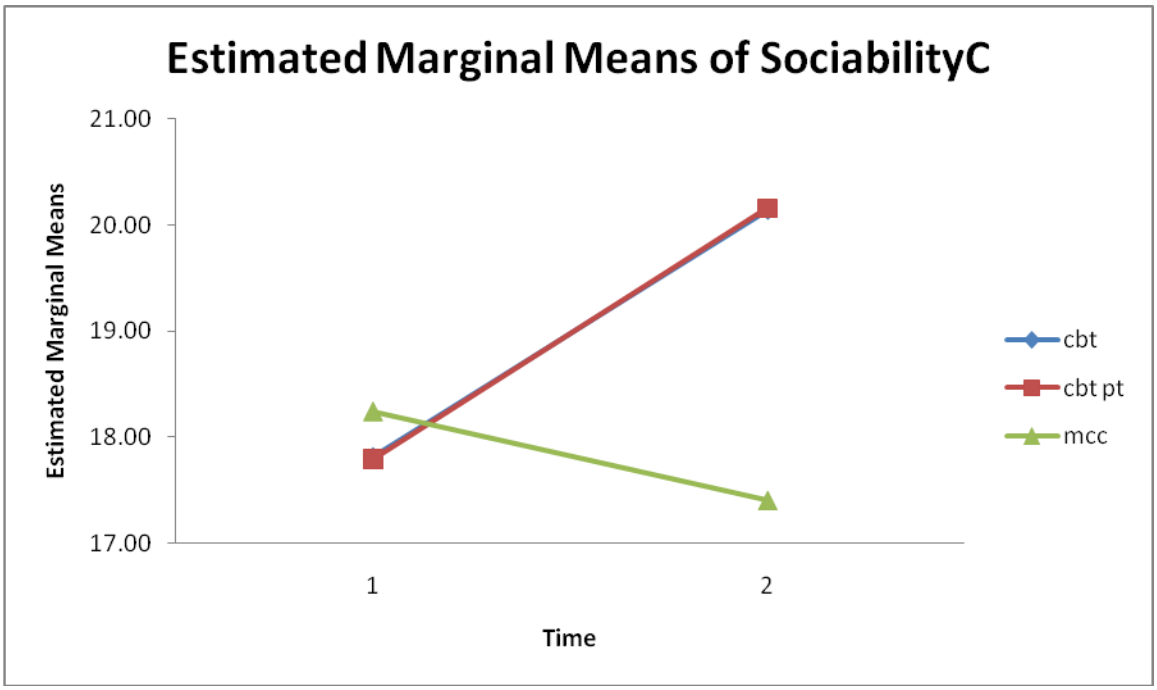
Table 28

Descriptive Statistics for Girls' Sociability Ratings

Condition	Time	*M*	*SD*
CBT	1	17.77	7.27
	2	19.95	6.50
CBT+PT	1	18.54	6.47
	2	20.03	6.52
MCC	1	18.24	7.35
	2	17.40	7.21

Note. Time 1 and time 2 represent pre-treatment and post-treatment, respectively.

Figure 7. Girls' Ratings of Sociability from Pre- to Post-Treatment.



Hypothesis 2B

Hypothesis 2B predicted that girls in the CBT+PT condition would report less conflict and more cohesion, communication, and family sociability than girls in the CBT only condition from post-treatment through the annual follow-up assessments, which lasted up to four years post-treatment.

Hypothesis 2B Preliminary Analyses. For the growth curve modeling analyses for Hypothesis 2B, data were inspected to determine whether assumptions for the individual growth model, unconditional between-subjects model, and conditional between-subjects model have been met (Tate, 1998). The assumptions for the individual growth model are that the residuals are normally and independently distributed with a mean of zero and a constant variance. The individual growth trajectories were inspected to identify violations of these assumptions. The assumptions for the unconditional between-subjects model are that the residuals are independently sampled from a bivariate normal distribution with a mean of zero and a constant variance-covariance matrix. Histograms of the estimated residuals of the unconditional model were examined to identify outliers and violations of these assumptions. The assumptions of the conditional between-subjects model are that the residuals are independently sampled from a bivariate normal distribution with a mean of zero and a constant variance-covariance matrix. Plots of estimated residuals from the conditional model were examined to identify outliers and violations of these assumptions. To provide a general understanding of the trends within the data over time for ratings of conflict, cohesion, communication, and family sociability by girls in the CBT and

CBT+PT conditions, Tables 29 - 32 provide means and standard deviations for these family functioning variables at Time 2 (post-treatment), Time 3 (one year following treatment), Time 4 (two years following treatment) Time 5 (three years following treatment), and Time 6 (four years following treatment). These tables also include an enumeration of the sample size at the different assessment points.

Table 29

Descriptive Statistics for Girls' Conflict Ratings Over Time

	CBT			CBT + PT		
Time	n	*M*	*SD*	n	*M*	*SD*
2	44	5.25	3.84	39	5.23	3.21
3	30	5.30	3.21	16	5.81	3.94
4	15	5.33	4.44	9	6.33	3.67
5	11	7.00	4.80	6	6.00	3.95
6	5	3.20	1.79	1	9.00	

Table 30

Descriptive Statistics for Girls' Cohesion Ratings Over Time

	CBT			CBT + PT		
Time	n	*M*	*SD*	n	*M*	*SD*
2	44	25.89	5.80	39	26.46	7.07
3	30	25.77	5.66	15	26.00	6.62
4	14	26.79	5.86	9	22.78	6.20
5	11	26.09	6.69	6	22.67	7.66
6	5	29.80	5.45	1	15.00	

Table 31

Descriptive Statistics for Girls' Communication Ratings Over Time

	CBT			CBT + PT		
Time	n	*M*	*SD*	n	*M*	*SD*
2	43	14.00	8.57	37	17.43	8.53
3	31	15.71	7.92	17	14.53	8.65
4	16	15.69	8.13	9	11.00	6.10
5	11	15.18	7.69	5	11.60	10.16
6	5	15.20	7.36	1	8.00	

Table 32

Descriptive Statistics for Girls' Sociability Ratings Over Time

	CBT			CBT + PT		
Time	n	*M*	*SD*	n	*M*	*SD*
2	43	19.95	6.50	39	20.03	6.52
3	32	19.66	7.52	16	20.31	7.42
4	16	22.25	6.53	8	18.75	8.08
5	11	21.64	6.93	6	15.33	6.09
6	5	22.60	6.47	1	13.00	

Hypothesis 2B Main Analyses. Growth curve modeling with HLM was used to evaluate change in girls' ratings of conflict, cohesion, communication, and family sociability from post-treatment through the follow-up assessments in the two treatment conditions (i.e., CBT+PT and CBT). The model specification procedure described in Hypothesis 1 was employed to determine the functional form of the growth curves for each of the family functioning variables (i.e., used Chi-square tests to compare the deviance statistics and number of parameters being estimated for increasingly complex unconditional growth curves for each of the family functioning variables). The results of this model specification procedure revealed that the best model fits for the family functioning variables were: a linear growth curve model with random effects for conflict, cohesion, and communication and a quadratic growth curve model with random effects for sociability. The intercept for time was status of each of the family functioning variable ratings at post-treatment. The specific results from the unconditional and conditional growth curve modeling analyses for each of the family functioning variables follow.

For conflict, the unconditional linear growth model showed that the intercept estimate was 5.17, $SE = 0.36$, $t(83) = 14.26$, $p < .001$, indicating that on average girls' conflict ratings at post-treatment were 5.17. To evaluate whether there was between-subject variability in intercept and slope in the unconditional linear growth model, Chi-square tests for these variance components were inspected. While there was significant between-subject variation in intercept ($\chi^2 = 85.01$, $df = 50$, $p < .01$), there was not significant between-subject variation in slope ($\chi^2 = 56.75$, $df = 50$, $p = .24$). Since creating

and testing a conditional linear growth model for girls' ratings of conflict that includes treatment condition as an explanatory variable is predicated on the presence of significant between-subject variation in slope, additional analyses for this part of the hypothesis were not conducted.

For cohesion, the unconditional linear growth model indicated that the intercept estimate was 26.04, $SE = 0.66$, $t(83) = 39.49$, $p < .001$, suggesting that on average girls' cohesion ratings at post-treatment were 26.04. To determine whether there was between-subject variability in intercept and slope in the unconditional linear growth model, Chi-square tests for these variance components were inspected. There was between-subject variability in both intercept ($\chi^2 = 94.80$, $df = 47$, $p < .001$) and slope ($\chi^2 = 65.49$, $df = 47$, $p = .04$). A conditional linear growth model with treatment condition (0 = CBT, 1 = CBT+PT) as an explanatory variable was then created to test whether treatment condition explains variability in intercept and slope. The coefficients for the model including treatment condition as an explanatory variable did not yield any significant results (see Table 33). Therefore, these results will not be discussed further.

Table 33

Estimated Fixed Effects for Hypothesis 2B Cohesion

Fixed Effect	Estimated Parameter	*SE*	*df*	*t*	*p*
Intercept					
Intercept	25.62	0.77	82	33.28	<.001
Condition	0.96	1.35	82	0.71	.48
Slope					
Intercept	0.19	0.46	82	0.40	.69
Condition	-1.55	0.95	82	-1.63	.11

However, as shown in Table 34, the variances of residuals for intercept and slope for the conditional linear model including treatment condition as a predictor were significant, suggesting that further modeling of individual growth curve variations with other clinically relevant explanatory variables is warranted.

Table 34

Estimated Variance Components for Hypothesis 2B Cohesion

Random Effect	Estimated Parameter Variance	χ^2	*df*	*p*
Intercept	19.18	91.37	46	<.001
Slope	1.64	58.42	46	.10

For communication, the intercept estimate for the unconditional linear growth model was 15.60, $SE = 0.89$, $t(81) = 17.63$, $p < .001$, indicating that on average girls' communication ratings at post-treatment were 15.60. To establish whether there was between-subject variability in intercept and slope in the unconditional linear growth model, Chi-square tests for these variance components were inspected. There was significant between-subject variation in intercept ($\chi^2 = 93.55$, $df = 50$, $p < .001$) and slope ($\chi^2 = 74.00$, $df = 50$, $p = .02$). Therefore, a conditional linear growth model with treatment condition (0 = CBT, 1 = CBT+PT) as an explanatory variable was created to test whether treatment condition explains variability in intercept and slope for girls' communication ratings. The coefficients for the model including treatment condition as an explanatory variable showed that treatment condition was significantly related to slope, but not to intercept (see Table 35). For each additional year of the study, communication ratings by girls in the CBT group on average increased by 0.68 points, while communication ratings by girls in the CBT+PT group on average decreased by 2.56 points. Figure 8 shows a

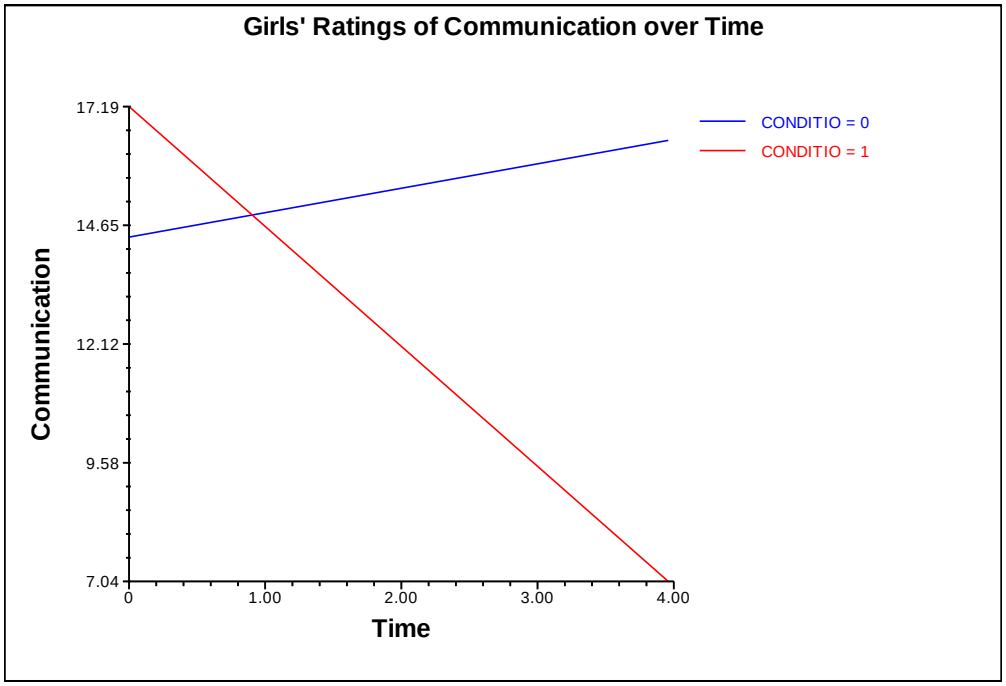
graphic representation of the average linear growth curves for girls in the CBT and CBT+PT conditions.

Table 35

Estimated Fixed Effects for Hypothesis 2B Communication

Fixed Effect	Estimated Parameter	*SE*	*df*	*t*	*p*
Intercept					
Intercept	14.40	1.15	80	12.54	<.001
Condition	2.79	1.77	80	1.58	.12
Slope					
Intercept	0.52	0.68	80	0.76	.45
Condition	-3.08	1.25	80	-2.47	.02

Figure 8. Predicted Girls' Communication Ratings.



Note. Condition = 0 represents the CBT group, and condition = 1 represents the CBT+PT group.

As demonstrated in Table 36, the variances of residuals for intercept and slope remained significant after including treatment condition in the conditional between-subjects linear growth model, indicating that further modeling of individual growth curve variations with additional explanatory variables is warranted.

Table 36

Estimated Variance Components for Hypothesis 2B Communication

Random Effect	Estimated Parameter Variance	χ^2	*df*	*p*
Intercept	27.11	92.02	49	<.001
Slope	4.87	68.77	49	.03

For sociability, the unconditional quadratic growth model indicated that the intercept estimate was 19.96, $SE = 0.71$, $t(83) = 28.01$, $p < .001$, suggesting that on average girls' sociability ratings at post-treatment were 19.96. To determine whether there was between-subject variability in intercept and slope in the unconditional quadratic growth model, Chi-square tests for these variance components were inspected. There was significant between-subject variation in intercept ($\chi^2 = 85.05$, $df = 23$, $p < .001$), the linear component of slope ($\chi^2 = 60.33$, $df = 23$, $p < .001$), and the quadratic component of slope ($\chi^2 = 44.00$, $df = 23$, $p < .01$).

The unconditional quadratic growth curve model was then expanded to include the time-invariant predictor of treatment condition (0 = CBT, 1 = CBT+PT) to determine whether treatment condition explains variability in intercept and growth rates. The coefficients for the model including treatment condition as an explanatory variable did not yield any significant results as can be seen in Table 37. Therefore, these results will not be discussed further.

Table 37

Estimated Fixed Effects for Hypothesis 2B Sociability

Fixed Effect	Estimated Parameter	*SE*	*df*	*t*	*p*
Intercept					
Intercept	19.90	0.97	82	20.49	<.001
Condition	0.13	1.42	82	0.09	.93
Linear Slope					
Intercept	-0.43	1.44	82	-0.30	.77
Condition	0.10	2.36	82	0.04	.97
Quadratic Slope					
Intercept	0.31	0.36	82	0.86	.39
Condition	-0.46	0.61	82	-0.76	.45

As shown in Table 38, the variances of residuals for the intercept, linear component of slope, and quadratic component of slope were significant, indicating that further modeling of individual growth curve variations with clinically relevant explanatory variables may be beneficial.

Table 38

Estimated Variance Components for Hypothesis 2B Sociability

Random Effect	Estimated Parameter Variance	χ^2	*df*	*p*
Intercept	29.79	87.68	22	<.001
Linear Slope	41.69	63.02	22	<.001
Quadratic Slope	1.86	47.25	22	<.01

Hypothesis 3A

Hypothesis 3A predicted that change from pre- to post-treatment in ratings of the family functioning variables of conflict, cohesion, communication, and family sociability by primary caregivers of girls in the CBT, CBT+PT, and MCC conditions would be different across treatment conditions. Assuming a significant interaction between study condition and time, at post-treatment, primary caregivers of girls in the CBT+PT condition were predicted to report less conflict and more cohesion, communication, and family sociability than primary caregivers of girls in the CBT only and MCC conditions. There was not expected to be a difference in ratings of these family functioning variables between primary caregivers of girls in the CBT only and MCC conditions at post-treatment.

Hypothesis 3A Preliminary Analyses. Preliminary analyses were conducted to determine whether the data met the assumptions necessary to perform two-way repeated

measures ANOVAs. The study circumstances were designed to ensure that observations were independent between and within groups. Levene's Test of Equality of Error Variances was used to determine whether there were equal population variances for each group (i.e., CBT, CBT+PT, and MCC) on the dependent variables at pre- and post-treatment. For conflict, the variances of the three groups were not statistically different at pre-treatment ($F(2,53) = 1.09$, $p = .34$) or at post-treatment ($F(2,53) = 0.43$, $p = .66$). A square root transformation was conducted for the conflict variable as will be described below. For conflict with the square root transformation, the variances of the three groups were not statistically different at pre-treatment ($F(2,53) = 0.41$, $p = .67$) or at post-treatment ($F(2,53) = 0.02$, $p = .98$). For cohesion, the variances of the three groups were statistically different at pre-treatment ($F(2,53) = 8.29$, $p = .001$) and at post-treatment ($F(2,53) = 3.61$, $p = .03$). ANOVA is robust to small and moderate departures from homogeneity of variance (Box, 1954), particularly when groups are of similar sample size (i.e., the largest group is less than 1.5 times the smallest group), or when the ratio of the largest to the smallest group variances does not exceed 4:1 (Moore, 1995). Unfortunately for the analysis with the variable cohesion neither of these is the case, suggesting that the power to detect a significant finding may be low. For communication, the variances of the groups were not statistically different at pre-treatment ($F(2,55) = 0.07$, $p = .07$) or at post-treatment ($F(2,55) = 2.72$, $p = .08$). For sociability, the variances of the groups were not statistically different at pre-treatment ($F(2,53) = 0.14$, $p = .87$) or at post-treatment ($F(2,53) = 0.99$, $p = .38$). The sphericity assumption is often tested when using repeated measures ANOVA, but sphericity can only be evaluated when there are more than two

time points being compared (Field, 2005). Because the analysis for this hypothesis only included two time points, sphericity could not be tested. To assess whether scores on the dependent variables (i.e., conflict, cohesion, communication, and family sociability) were normally distributed, z-scores for skewness and kurtosis were calculated for each dependent variable and inspected for each group (i.e., CBT, CBT+PT, and MCC) at pre-treatment and at post-treatment. Z-scores for skewness and kurtosis that were below the absolute value of 3.29 were considered acceptable for meeting the assumption of normality (Field, 2005). All z-scores for skewness and kurtosis were below the pre-determined value and satisfied the assumption of normality, except for conflict at pre-treatment for the CBT group. Therefore, a square root transformation was conducted for the conflict variable at pre- and post-treatment. This resulted in acceptable values of skewness and kurtosis for the conflict variable. Table 39 presents the skewness and kurtosis data for this hypothesis.

Table 39

Skewness and Kurtosis for Hypothesis 3A

	CBT		CBT+PT		MCC	
	Skewness	Kurtosis	Skewness	Kurtosis	Skewness	Kurtosis
Conflict						
Time 1	3.32	2.94	0.59	-0.15	2.07	1.75
Time 2	2.22	1.17	0.83	-0.75	1.34	0.58
ConflictSqRt Transformation						
Time 1	1.46	1.14	-0.59	-0.08	1.14	0.52
Time 2	1.00	0.23	0.04	-0.96	0.65	-0.02
Cohesion						
Time 1	-2.33	0.66	-0.41	-1.26	1.35	0.61
Time 2	-2.23	0.75	-0.74	-1.23	0.26	-0.47
Communication						
Time 1	-0.96	-1.08	-0.38	-0.71	0.69	-1.39
Time 2	-0.93	0.39	-0.46	-0.53	-0.17	-1.24
Sociability						
Time 1	0.48	-0.90	1.03	-1.15	0.47	-1.22
Time 2	0.44	-1.21	1.36	-0.78	0.87	0.56

Note. Skewness and kurtosis values presented in this table are z-scores. Time 1 represents pre-treatment and Time 2 represents post-treatment.

Hypothesis 3A Main Analyses. Separate two-way repeated measures ANOVAs were conducted for primary caregivers' ratings of each of the family functioning variables (i.e., conflict, cohesion, communication, and family sociability) to test whether ratings of these family functioning variables changed differently from pre- to post-treatment in the three groups (i.e., CBT, CBT+PT, and MCC). Prior to running each analysis, *t* tests were used to decipher whether there were differences between the three groups on the family functioning variable ratings at pre-treatment. There were no significant differences between the groups on any of these ratings at pre-treatment.

Two-way repeated measures ANOVAs for primary caregivers' ratings of conflict were run both with and without the square root transformation. Both tests yielded the same findings, a significant main effect of time but no significant interaction or main effect of study condition. Therefore, for ease of interpretation, results from the two-way repeated measures ANOVA conducted for ratings of conflict without the square root transformation are presented below. There was not a significant interaction between study condition and time, $F(2,53) = 1.18$, $p = .32$, partial eta squared = .04 (see Table 40). There also was not a main effect of condition ($F(2,53) = 1.33$, $p = .27$), partial eta squared = .05), but there was a main effect of time ($F(1,53) = 16.73$, $p = .00$), partial eta squared = .24), suggesting that when averaging across study conditions primary caregivers' ratings of conflict were significantly different from pre- to post-treatment. As demonstrated in Figure 9 and Table 41, means of primary caregivers' ratings of conflict in all conditions decreased from pre-treatment to post-treatment with the lowest mean at post-treatment in the CBT+PT condition.

Table 40

Within-Subjects Effects for Primary Caregivers' Conflict Ratings

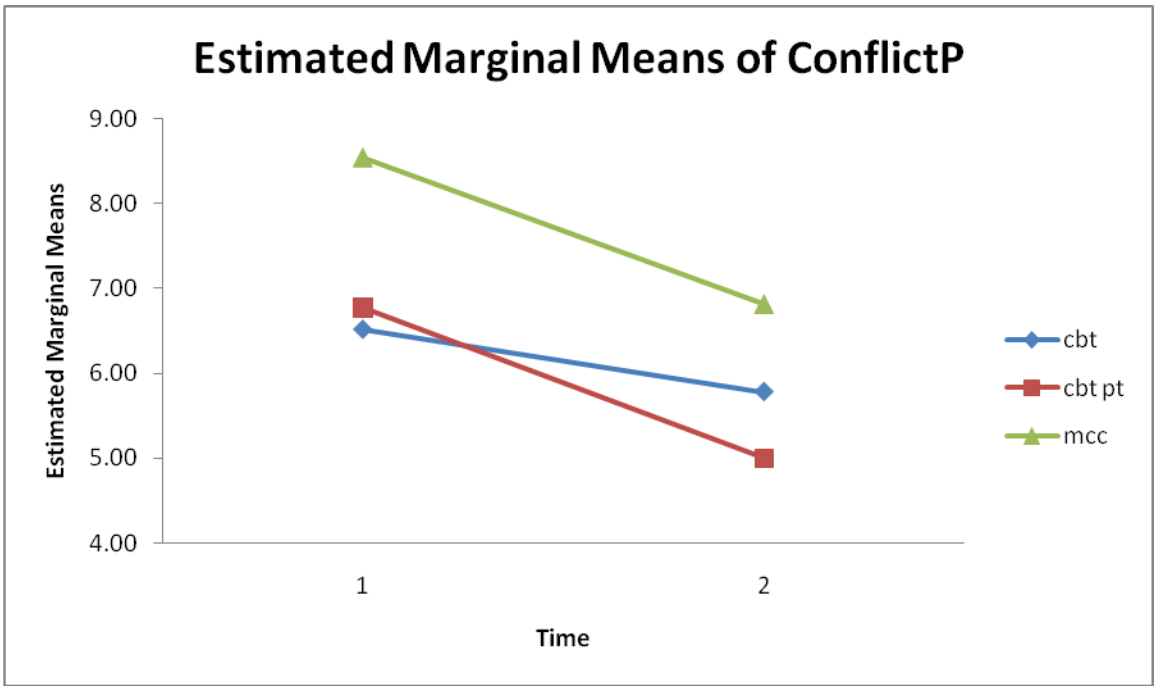
Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*
Time	49.96	1	49.96	16.73	.24
Time* Condition	7.038	2	3.52	1.18	.04
Error (Time)	158.24	53	2.99		

Table 41

Descriptive Statistics for Primary Caregivers' Conflict Ratings

Condition	Time	*M*	*SD*
CBT	1	6.52	4.21
	2	5.78	2.75
CBT+PT	1	6.77	2.88
	2	5.00	2.31
MCC	1	8.55	4.85
	2	6.82	2.89

Figure 9. Primary Caregivers' Ratings of Conflict from Pre- to Post-Treatment.



The two-way repeated measures ANOVA for primary caregivers' ratings of cohesion did not reveal a significant interaction between study condition and time, $F(2,53) = 2.91$, $p = .06$, partial eta squared = .10. There also was not a main effect of time, $F(1,53) = .08$, $p = .78$ (see Table 42), or study condition, $F(2,53) = 1.12$, $p = .34$, partial eta squared = .04. However, it is important to recall that the homogeneity of variance assumption was violated for this analysis, which likely resulted in the inflation of Type II error. Therefore, an inspection of mean ratings of cohesion from pre- to post-treatment for primary caregivers' in the three conditions is beneficial for understanding the trend in the data. As displayed in Table 43 and Figure 10, mean cohesion ratings increased from pre- to post-treatment for primary caregivers in the CBT+PT group and decreased for primary caregivers in the CBT and MCC groups. At post-treatment, mean cohesion ratings were highest for primary caregivers in the CBT+PT condition, followed by those in the CBT only condition, and lowest for primary caregivers in the MCC condition.

Table 42

Within-Subjects Effects for Primary Caregivers' Cohesion Ratings

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*
Time	0.50	1	0.50	0.08	.78
Time* Condition	36.38	2	18.19	2.91	.06
Error (Time)	331.54	53	6.26		

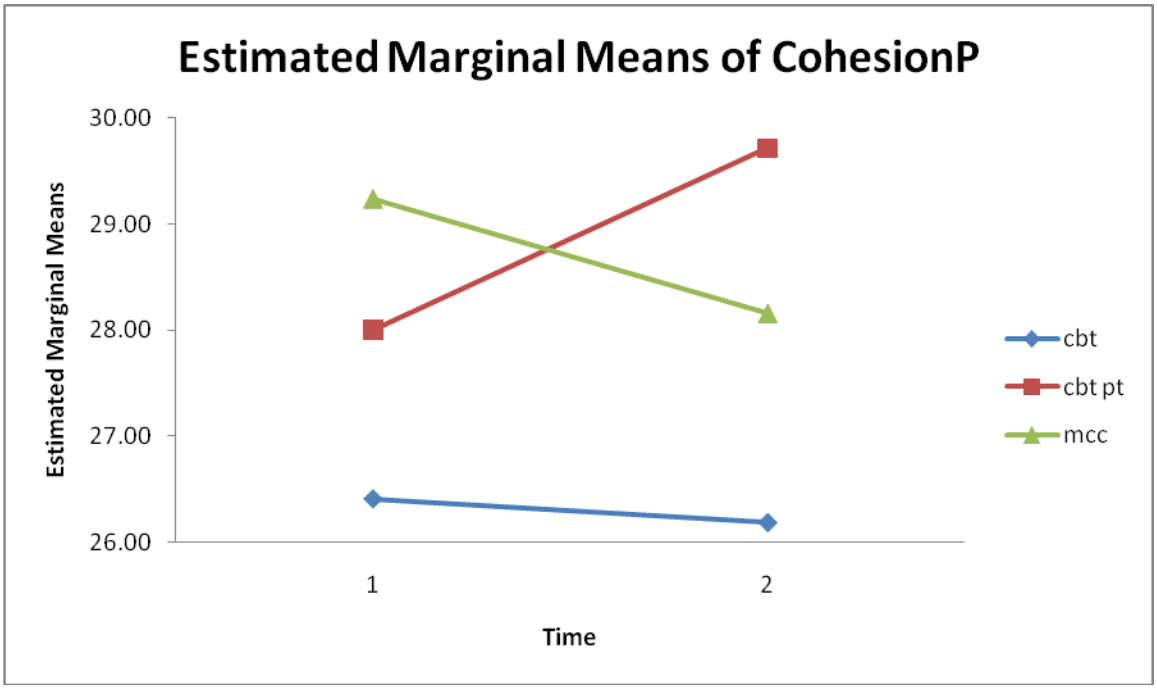
Table 43

Descriptive Statistics for Primary Caregivers' Cohesion Ratings

Condition	Time	*M*	*SD*
CBT	1	26.41	8.70
	2	26.18	8.20
CBT+PT	1	28.00	4.98
	2	29.71	4.98
MCC	1	29.23	2.56
	2	28.15	4.38

Note. Time 1 and time 2 represent pre-treatment and post-treatment, respectively.

Figure 10. Primary Caregivers' Ratings of Cohesion from Pre- to Post-Treatment.



The two-way repeated measures ANOVA for primary caregivers' ratings of communication did not reveal a significant interaction between study condition and time, $F(2,55) = 2.35$, $p = .11$, partial eta squared = .08, or a main effect of time, $F(1,55) = .12$, $p = .73$, partial eta squared = .002 (see Table 44). However, there was a main effect for study condition, $F(2,55 = 3.12$, $p = .05$, partial eta squared = .10 (see Table 45). Independent samples *t* tests were conducted to determine whether there were significant differences between primary caregivers' communication ratings at post-treatment. Significant differences were found for primary caregivers' mean ratings of communication at post-treatment between those in the CBT+PT and CBT conditions ($t(45) = -2.51$, $p = .02$) and between those in the CBT+PT and MCC conditions ($t(35) = 2.94$, $p = .01$). There was not a significant difference in mean ratings of communication at post-treatment by primary caregivers in the CBT and MCC conditions ($t(38) = 0.56$, $p = .58$). As illustrated in Figure 11 and Table 46, communication ratings increased from pre- to post-treatment for primary caregivers in the CBT+PT group and decreased for primary caregivers in the CBT and MCC groups.

Table 44

Within-Subjects Effects for Primary Caregivers' Communication Ratings

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*
Time	1.06	1	1.06	.12	.73
Time* Condition	40.64	2	20.32	2.35	.11
Error (Time)	475.33	55	8.64		

Table 45

Between-Subjects Effects for Primary Caregivers' Communication Ratings

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*
Intercept	400032.50	1	400032.50	417.67	.00
Condition	298.57	2	299.57	3.12	.05
Error	95.85	55	95.85		

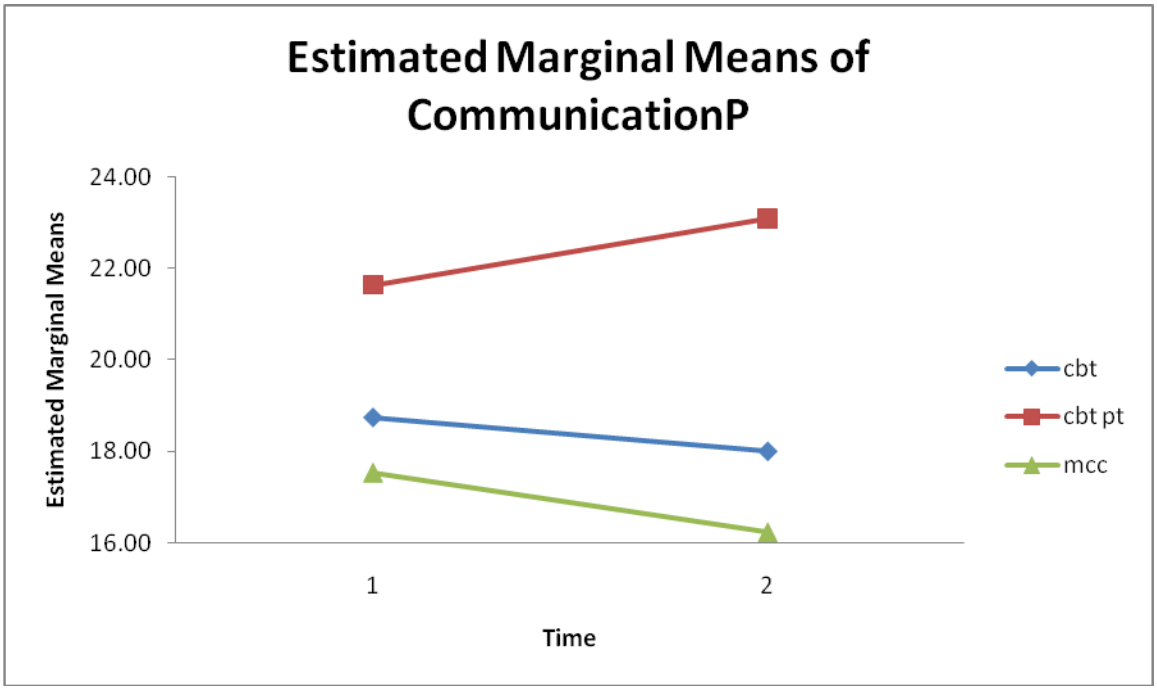
Table 46

Descriptive Statistics for Primary Caregivers' Communication Ratings

Condition	Time	*M*	*SD*
CBT	1	18.74	9.34
	2	18.00	7.99
CBT+PT	1	21.64	6.29
	2	23.09	4.85
MCC	1	17.54	5.95
	2	16.23	7.45

Note. Time 1 and time 2 represent pre-treatment and post-treatment, respectively.

Figure 11. Primary Caregivers' Ratings of Communication from Pre- to Post-Treatment.



The two-way repeated measures ANOVA for primary caregivers' ratings of family sociability revealed a significant interaction between study condition and time, $F(2,53) = 4.00$, $p = .02$, partial eta squared = .13 (see Table 47). One-way repeated measures ANOVAs were then conducted for each condition. The overall test for the one-way repeated measures ANOVA was not significant for the CBT+PT group ($F(1,20) = 3.26$, $p = .09$.) or the CBT group ($F(1,21) = 0.23$. $p = .64$, but was significant for the MCC group ($F(1,12) = 4.65$, $p = .05$). Independent samples *t* tests were run to determine whether there were significant differences on sociability ratings between primary caregivers in the three conditions at post-treatment. There were not significant differences between mean sociability ratings at post-treatment between primary caregivers in the CBT and CBT+PT conditions ($t(44) = -1.53$, $p = .13$) or in the CBT and MCC conditions ($t(38) = 0.93$, $p = .36$). However, there was a significant difference in these ratings between primary caregivers in the CBT+PT and MCC conditions ($t(34) = 2.55$, $p = .02$). Figure 12 and Table 48 illustrate that from pre- to post-treatment mean ratings of sociability increased the most for primary caregivers in the CBT+PT condition and increased slightly for the CBT condition. In contrast, on average, ratings of sociability by primary caregivers in the MCC condition decreased from pre- to post-treatment.

Table 47

Within-Subjects Effects for Primary Caregivers' Sociability Ratings

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*
Time	0.21	1	0.21	0.31	.86
Time* Condition	54.70	2	27.35	4.00	.02
Error (Time)	362.01	53	6.83		

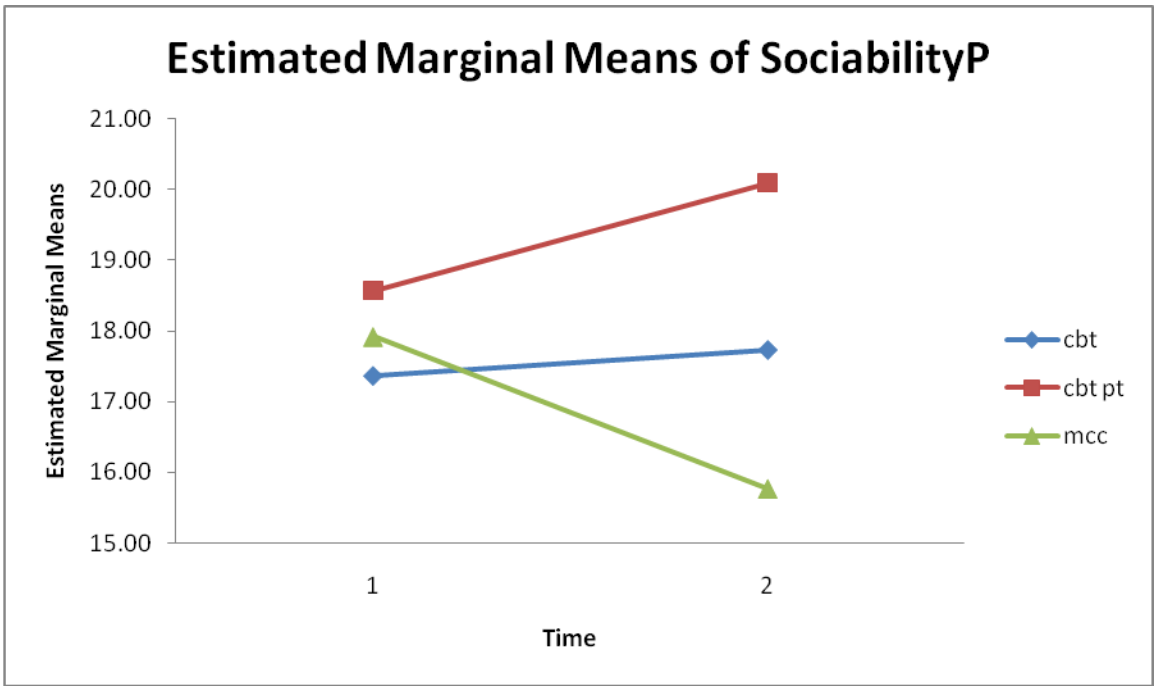
Table 48

Descriptive Statistics for Primary Caregivers' Sociability Ratings

Condition	Time	*M*	*SD*
CBT	1	17.36	7.21
	2	17.73	6.94
CBT+PT	1	18.57	7.28
	2	20.10	5.89
MCC	1	17.92	6.59
	2	15.77	5.70

Note. Time 1 and time 2 represent pre-treatment and post-treatment, respectively.

Figure 12. Primary Caregivers' Ratings of Sociability from Pre- to Post-Treatment.



Hypothesis 3B

Hypothesis 3B predicted that primary caregivers of girls in the CBT+PT condition would report less conflict and more cohesion, communication, and family sociability than primary caregivers of girls in the CBT only condition from post-treatment through the annual follow-up assessments, which lasted up to four years post-treatment.

Hypothesis 3B Preliminary Analyses. For the growth curve modeling analyses for Hypothesis 3B, data were inspected to determine whether assumptions for the individual growth model, unconditional between-subjects model, and conditional between-subjects model have been met (Tate, 1998). The assumptions for the individual growth model are that the residuals are normally and independently distributed with a mean of zero and a constant variance. The individual growth trajectories were inspected to identify violations of these assumptions. The assumptions for the unconditional between-subjects model are that the residuals are independently sampled from a bivariate normal distribution with a mean of zero and a constant variance-covariance matrix. Histograms of the estimated residuals of the unconditional model were examined to look for outliers and violations of these assumptions. The assumptions of the conditional between-subjects model are that the residuals are independently sampled from a bivariate normal distribution with a mean of zero and a constant variance-covariance matrix. Plots of estimated residuals from the conditional model were examined to search for outliers and violations of these assumptions. To provide a general understanding of the trends within the data over time for ratings of conflict, cohesion, communication, and family sociability by primary caregivers of girls in the CBT and CBT+PT conditions, Tables 49 - 52 provide means

and standard deviations for ratings of these family functioning variables at Time 2 (post-treatment), Time 3 (one year following treatment), Time 4 (two years following treatment) Time 5 (three years following treatment), and Time 6 (four years following treatment). These tables also include an enumeration of the sample size at the different assessment points.

Table 49

Descriptive Statistics for Primary Caregivers' Conflict Ratings Over Time

	CBT			CBT + PT		
Time	n	*M*	*SD*	n	*M*	*SD*
2	25	5.84	2.64	22	5.00	2.31
3	18	6.78	3.21	12	5.67	2.57
4	7	5.29	1.89	9	5.33	2.45
5	9	6.11	1.76	2	6.50	3.54
6	3	4.00	2.00	0		

Table 50

Descriptive Statistics for Primary Caregivers' Cohesion Ratings Over Time

	CBT			CBT + PT		
Time	n	*M*	*SD*	n	*M*	*SD*
2	24	26.29	8.01	22	29.82	4.89
3	18	25.56	7.11	12	28.58	3.90
4	7	29.00	5.48	9	29.22	3.63
5	9	28.11	6.57	1	31.00	
6	3	30.33	4.04	0		

Table 51

Descriptive Statistics for Primary Caregivers' Communication Ratings Over Time

	CBT			CBT + PT		
Time	n	*M*	*SD*	n	*M*	*SD*
2	25	18.32	7.99	22	23.09	4.85
3	18	18.61	6.92	12	19.08	5.27
4	6	20.33	5.99	9	20.00	4.00
5	9	22.22	7.92	2	21.50	4.95
6	3	25.00	5.00	0		

Table 52

Descriptive Statistics for Primary Caregivers' Sociability Ratings Over Time

	CBT			CBT + PT		
Time	n	*M*	*SD*	n	*M*	*SD*
2	25	17.12	7.07	21	20.10	5.89
3	17	15.94	7.05	12	20.17	6.29
4	7	20.29	8.12	9	19.00	6.38
5	9	18.56	8.06	2	25.00	8.49
6	3	21.00	4.00	0		

Hypothesis 3B Main Analyses. Growth curve modeling with HLM was used to assess change in primary caregivers' ratings of conflict, cohesion, communication, and family sociability from post-treatment through the follow-up assessments in the two treatment conditions (i.e., CBT+PT and CBT). The model specification procedure described in Hypothesis 1 was used to determine the functional form of the growth curves for each of the family functioning variables (i.e., used Chi-square tests to compare the deviance statistics and number of parameters being estimated for increasingly complex unconditional growth curves for each of the family functioning variables). The results of this model specification procedure revealed that the best model fits for all of the family functioning variables were linear growth curve models with random effects. The intercepts for this hypothesis were status of each of the family functioning variable ratings by primary caregivers at post-treatment. The specific results from the unconditional and conditional growth curve modeling analyses for each of the family functioning variables follow.

For conflict, the unconditional linear growth model indicated that the intercept estimate was 5.82, $SE = 0.36$, $t(56) = 16.24$, $p < .001$, suggesting that on average primary caregivers' conflict ratings at post-treatment were 5.82. To determine whether there was between-subject variability in intercept and slope in the unconditional linear growth model, Chi-square tests for these variance components were inspected. There was not between-subject variability in intercept ($\chi^2 = 38.34$, $df = 28$, $p = .09$) or slope ($\chi^2 = 23.56$, $df = 28$, $p > .50$). Since creating and testing a conditional linear growth model for primary caregivers' ratings of conflict that includes treatment condition as an explanatory variable

requires the presence of significant between-subject variation in slope, additional analyses for this part of the hypothesis were not conducted.

For cohesion, the unconditional linear growth model showed that the intercept estimate was 27.78, $SE = 0.91$, $t(55) = 30.66$, $p < .001$, suggesting that on average primary caregivers' cohesion ratings at post-treatment were 27.78. To establish whether there was significant between-person variation in intercept or slope in the unconditional linear growth model, Chi-square tests for these variance components were inspected. There was significant between-subject variability in both intercept ($\chi^2 = 144.34$, $df = 28$, $p < .001$) and slope ($\chi^2 = 51.52$, $df = 28$, $p < .01$). A conditional linear growth model with treatment condition (0 = CBT, 1 = CBT+PT) as an explanatory variable was then created to test whether treatment condition explains variability in intercept and slope. The coefficients for the model including treatment condition as an explanatory variable did not yield any significant results (see Table 53). Therefore, these results will not be discussed further.

Table 53

Estimated Fixed Effects for Hypothesis 3B Cohesion

Fixed Effect	Estimated Parameter	*SE*	*df*	*t*	*p*
Intercept					
Intercept	26.41	1.38	54	19.08	<.001
Condition	3.02	1.70	54	1.78	.08
Slope					
Intercept	0.34	0.57	54	0.59	.56
Condition	-1.05	0.84	54	-1.25	.22

However, as shown in Table 54, the variances of residuals for intercept and slope for the conditional linear model including treatment condition as a predictor were significant, suggesting that further modeling of individual growth curve variations with other clinically relevant explanatory variables may be beneficial.

Table 54

Estimated Variance Components for Hypothesis 3B Cohesion

Random Effect	Estimated Parameter Variance	χ^2	*df*	*p*
Intercept	32.69	127.74	27	<.001
Slope	1.84	47.81	27	.01

For communication, the unconditional linear growth model indicated that the intercept estimate was 19.64, $SE = 0.94$, $t(55) = 20.82$, $p < .001$, suggesting that on average primary caregivers' communication ratings at post-treatment were 19.64. To determine whether there was between-subject variability in intercept and slope in the unconditional linear growth model, Chi-square tests for these variance components were inspected. There was significant between-subject variation in both intercept ($\chi^2 = 243.04$, $df = 27$, $p < .001$) and slope ($\chi^2 = 57.88$, $df = 27$, $p = .001$). Therefore, a conditional linear growth model with treatment condition (0 = CBT, 1 = CBT+PT) as an explanatory variable was then developed to test whether treatment condition explains variability in slope and intercept. The coefficients for slope and intercept in the model including treatment condition were significant (see Table 55).

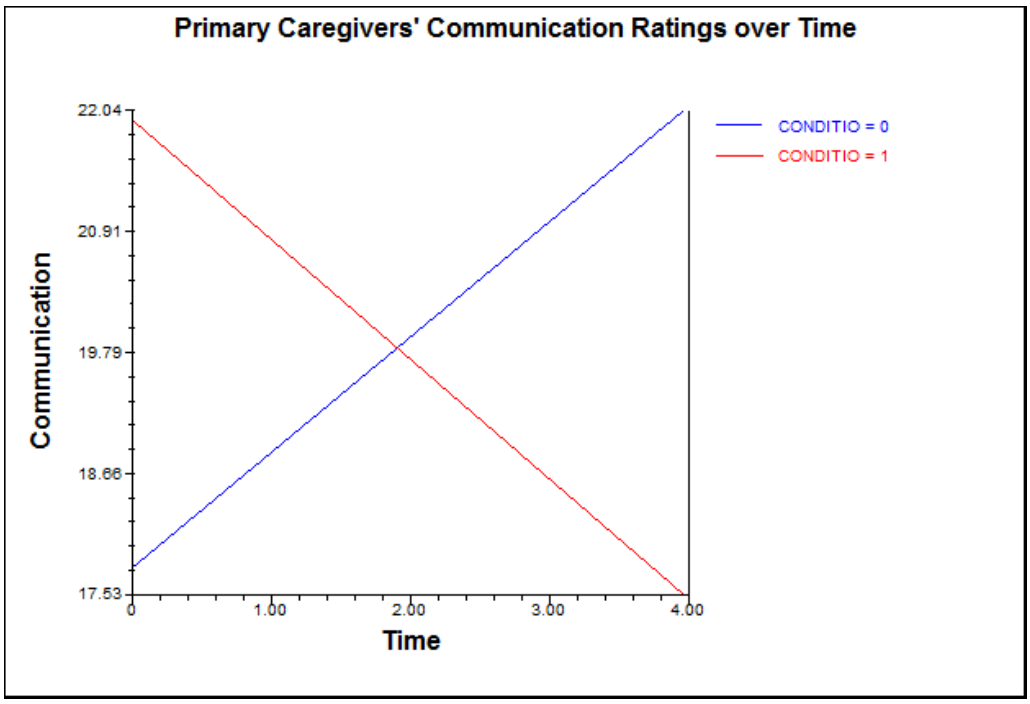
Table 55

Estimated Fixed Effects for Hypothesis 3B Communication

Fixed Effect	Estimated Parameter	*SE*	*df*	*t*	*p*
Intercept					
Intercept	17.78	1.31	54	13.61	<.001
Condition	4.18	1.74	54	2.41	.02
Slope					
Intercept	1.08	0.48	54	2.34	.03
Condition	-2.20	0.88	54	-2.50	.02

These results indicate that on average at post-treatment communication ratings for primary caregivers in the CBT condition were 17.78 and in the CBT+PT condition were 21.96. For each additional year of the study, communication ratings by primary caregivers in the CBT condition on average increased by 1.08 points, while communication ratings by primary caregivers in the CBT+PT condition on average decreased by 1.12 points. Figure 13 provides a graphic illustration of the average growth curves of primary caregivers' communication ratings from post-treatment through the follow-up time points.

Figure 13. Predicted Primary Caregivers' Communication Ratings.



Note. Condition = 0 represents the CBT group, and condition = 1 represents the CBT+PT group.

As displayed in Table 56, the variances of residuals for intercept and slope for the conditional linear model including treatment condition as a predictor were significant, suggesting that further modeling of individual growth curve variations with other clinically relevant explanatory variables is warranted.

Table 56

Estimated Variance Components for Hypothesis 3B Communication

Random Effect	Estimated Parameter Variance	χ^2	*df*	*p*
Intercept	36.59	221.73	26	<.001
Slope	2.21	46.57	26	.01

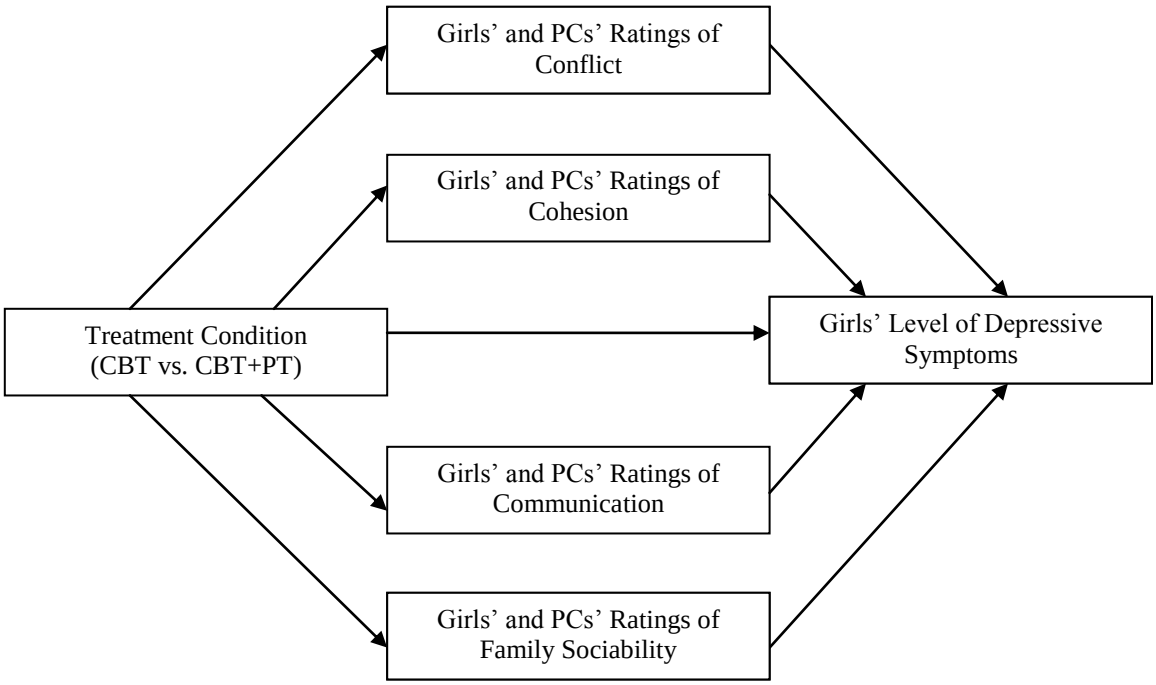
For sociability, the unconditional linear growth model showed that the intercept estimate was 18.67, *SE* = 0.88, *t*(54) = 21.31, $p < .001$, indicating that on average primary caregivers' sociability ratings at post-treatment were 18.67. To determine whether there was between subject-variability in intercept and slope in the unconditional linear growth model Chi-square tests for these variance components were inspected. There was significant between-subject variability in intercept ($\chi^2 = 154.14$, $df = 28$, $p < .001$), but not in slope ($\chi^2 = 31.73$, $df = 28$, $p = .29$). Because creating and testing a conditional linear growth model for primary caregivers' ratings of sociability that includes treatment condition as an explanatory variable requires the presence of significant between-subject variation in slope, additional analyses for this part of the hypothesis were not conducted.

Hypothesis 4

Hypothesis 4 predicted that the relation between participation in treatment condition (i.e., CBT or CBT+PT) and girls' level of depressive symptoms at the one-year

follow-up time point would be mediated by girls' and primary caregivers' ratings of conflict, cohesion, communication, and family sociability at that time point.

Figure 14. Mediated Pathways Proposed in Hypothesis 4.



Note. The multiple mediator model above was analyzed separately for girls' and primary caregivers' ratings of the family functioning variables at the one-year follow-up time point.

Hypothesis 4 Preliminary Analyses. For the tests of mediation, scatterplots of the data were used to check for linearity. To assess whether residuals were normally distributed, a plot of the residuals against the predicted values was evaluated. Sensitivity analyses were used to detect the presence of outliers. Analyses were conducted to ensure that there were no interactions between the independent variable and each of the mediators. In addition, tolerance statistics were calculated to test for multicollinearity between ratings on the scales, with separate analyses for girls' and primary caregivers'

ratings at the two time points. None of the tolerance statistics was below 0.10, indicating that multicollinearity was not present.

Hypothesis 4 Main Analyses. The purpose of Hypothesis 4 was to evaluate whether girls' and primary caregivers' ratings of the family functioning variables of conflict, cohesion, communication, and family sociability served as mediators for the relation between treatment condition and girls' depressive symptoms at the one-year follow-up time point (see Figure 14). The complexity of relations among most variables suggests that a multiple mediator model is often a more reasonable approach than a single mediator model (MacKinnon, 2008). The multiple mediator model evaluates the unique contribution of each of the mediators while holding the other mediators constant. The analysis of a multiple mediator model is a direct extension of the analysis for a single mediator model. The most widely used method for testing mediation was created by Kenny and his colleagues (see Baron & Kenny, 1986; Judd & Kenny, 1981; Kenny, Kashy, & Bolger, 1998, for review). Because a new regression statement was required for each regression equation of the mediational model testing, participants' data were removed if there were missing data on any of the variables, as recommended by MacKinnon (MacKinnon, 2008).

For the analysis of Hypothesis 4, the plan was to test two multiple mediator models with separate models for girls' and parents' ratings of the family functioning variables at the one-year follow-up time point. However, treatment condition was not a significant predictor of depressive symptoms ($R^2 = .001$, $F(1,38) = .03$, $p = .87$), which is the first step required for testing each of the multiple mediator models. Kenny and

colleagues (1998) stated that this first step is not always necessary and that a researcher may want to look for support for mediation in the absence of a significant relation between a predictor and an outcome. Therefore, the second step of evaluating whether treatment condition significantly predicted each of the mediators as rated by girls was tested using separate regression equations for each mediator. Treatment condition was not a significant predictor of girls' ratings of conflict (B = 0.49, β = 0.07, $t(36) = 0.40$, $p = .69$), cohesion (B = 0.01, β = 0.001, $t(36) = 0.01$, $p = .99$), communication (B = 0.75, β = 0.04, $t(36) = 0.26$, $p = .80$), or family sociability (B = 0.63, β = 0.04, $t(36) = 0.23$, $p = .82$) at the one year follow-up. The second step of the multiple mediator model, which included primary caregivers' ratings of the family functioning variables as mediators of the relation between treatment condition and girls' depressive symptoms at the one year follow-up, also showed that treatment condition was not a significant predictor of their ratings of conflict (B = -1.02, β = -0.18, $t(26) = -0.92$, $p = .37$), cohesion (B = 3.71, β = 0.30, $t(26) = 1.63$, $p = .12$), communication (B = 1.02, β = 0.08, $t(26) = .42$, $p = .68$), or family sociability (B = 4.85, β = 0.36, $t(26) = 1.93$, $p = .06$). Thus, testing of each of the multiple mediator models was ceased.

Hypothesis 4 Secondary Analyses. Although the family functioning variables as rated by girls and primary caregivers one year following the post-treatment assessment were not mediators of the relation between treatment condition and girls depressive symptoms at that time point, examining whether the proposed mediators were significantly related to girls' depressive symptoms is of clinical value. Therefore, as secondary analyses for Hypothesis 4, correlations between girls' depressive symptoms at

the one year follow-up time point and girls' and primary caregivers' ratings of the family functioning variables at that time point were computed. As shown in Table 57, girls' ratings of cohesion, communication, and family sociability were significantly negatively correlated with girls' depressive symptoms. In other words, higher ratings on those family functioning variables were associated with lower levels of depressive symptoms. The other proposed mediators were not significantly related to girls' depressive symptoms at that time point.

Table 57

Pearson Product Moment Correlations between Depressive Symptoms and Family Functioning Variables

Variable	Depressive Symptoms at One Year Follow-Up
Girls	
Conflict	0.29
Cohesion	-0.39*
Communication	-0.39*
Family Sociability	-0.36*
Primary Caregivers	
Conflict	-0.08
Cohesion	0.06
Communication	0.22
Family Sociability	0.14

Note. * denotes statistical significance at the .05 level.

CHAPTER 5

Discussion

Improving treatment for girls with depression by understanding factors that promote the maintenance of treatment effects is an important area of research (Compas et al., 1993; Petersen et al., 1991; Wichstrom, 199) given the association of depression with functional impairment, negative future outcomes, and high social, emotional, and financial costs to youth and families. The effectiveness in the short-term of treating depression during childhood and adolescence with CBT has been well-established (Compton et al., 2004; Reinecke et al., 1998). However, there is limited research on the effectiveness of CBT in the long-term, especially beyond one year following treatment. The few studies that have evaluated the long-term impact of depression treatment for youth have demonstrated that while the positive effect of CBT in reducing depressive symptoms typically spans throughout the initial months after treatment, this effect tends to diminish by one year post-treatment (Weisz et al., 2006). Thus, research has been needed that involves the evaluation of the maintenance of treatment effects from CBT interventions for girls through the collection of longitudinal data. In addition, there has been a call for new intervention strategies that may yield sustained treatment effects among youth with depression, particularly because the majority of relapse and recurrence prevention, to date, has focused on adult populations (Hollon et al., 1992).

The inclusion of primary caregivers in girls' depression treatment is one such intervention strategy due to awareness that families of depressed youth are often characterized by disturbances in family functioning, particularly in the areas of conflict,

cohesion, communication, and family sociability, and since aspects of the family environment are related to the development and maintenance of depressive disorders in children and adolescents. There was previously insufficient evidence to ascertain whether the incorporation of caregivers into girls' depression treatment has added benefits because they have rarely been included in clinical trials of depression treatment for youth (Sander & McCarty, 2005). Findings from the current study add important information to the existing literature about the maintenance of treatment effects for girls with depression. A review of the findings from this study will be followed by an integration of these findings with previous research, acknowledgement of the study limitations, and a description of implications for clinical practice and future research.

Overview of Findings

By examining the longitudinal impact of parental involvement in girls' depression treatment on depressive symptomatology and key areas of family functioning, this study extends knowledge about how to sustain treatment effects among girls with depression. Findings from this study also raise new research questions that warrant further consideration. Prior to reviewing the findings from this study, it is important to note that in general significant differences were not found between the child or primary caregiver participants that discontinued participation before the post-treatment assessment and those that completed post-treatment measures. This indicates that the results reported herein are generalizable to early adolescent girls with depression along with their primary caregivers.

Girls' Depressive Symptoms

The hypothesis that girls in the CBT+PT condition would report significantly lower levels of depressive symptoms than girls in the CBT only condition from post-treatment through the annual follow-up assessments was not supported, in that treatment condition did not significantly explain variation in girls' depressive symptom growth trajectories. In other words, there was not a significant difference in the average rate of change of girls' depressive symptoms over time depending on whether they were in the CBT or CBT+PT condition. This could indicate that the inclusion of primary caregivers in girls' depression treatment does not improve outcome when compared to treatment for depression without a parental component. However, parental attendance at PT meetings varied from zero to eight meetings. Therefore, caregivers may or may not have acquired the skills taught during the PT meetings or received an adequate level of support from the therapists based on whether they attended these meetings. By combining data on girls' depressive symptoms in the CBT+PT condition and generating an average growth curve for girls in this condition, the actual impact of including caregivers in girls' depression treatment may have been masked by the fact that there was differential attendance at PT meetings. Therefore, the results of this growth curve analysis should be interpreted with caution. It is also important to note that the parameters estimating girls' growth curves towards the end of the study for all analyses involving girls' depressive symptoms are based on a limited amount of data due to attrition. For this reason, it is difficult to know whether the estimates of girls' growth curves towards the end of the study are representative of the pattern that would be found in the population. However, the

parameters estimating girls' depressive symptom trajectories during the earlier follow-up periods have larger sample sizes and are therefore more reliable estimates of the population.

Another noteworthy finding from the growth curve analysis with girls' depressive symptoms measured over time is that results from this analysis (i.e., statistically significant variances of the model residuals) showed that there was variation between the rate of change of girls' depressive symptoms over time that although unexplained by treatment condition could be systematic and could be explained by other clinically relevant explanatory variables. Thus, two follow-up analyses were conducted using fundamental aspects of effective treatment delivery that have been identified in the literature: child attendance at CBT meetings and parental attendance at PT meetings.

Child Attendance at CBT Meetings. The first follow-up analysis examined child attendance at CBT meetings as a predictor of status of depressive symptoms at post-treatment and rate of growth of depressive symptoms for all girls without differentiating between those in the CBT or CBT+PT condition. Results from this analysis revealed that child attendance at CBT meetings significantly predicted rate of growth of girls' depressive symptoms. Specifically, girls, who attended all 20 CBT meetings, on average experienced a steady decrease in depressive symptoms over time; whereas, girls, who attended less CBT meetings, experienced an increasingly greater re-emergence in depressive symptomatology with each meeting they were unable to attend. Towards the end of the study, all girls experienced a decline in their depressive symptoms, regardless of their level of attendance. For girls who were unable to attend all of the CBT meetings,

the course of their depression was more similar to the typical chronic and recurrent pattern of depression that has been found in prior research, in which depressive symptoms tend to wax and wane over time (Keller, 2003). There may be numerous explanations for the finding that rate of change of girls' depressive symptoms was related to girls' attendance at CBT meetings. While the precise mechanisms that underlie this finding cannot be established from this study, a review of potential explanations is beneficial for identifying directions for future research. One explanation is that those who were able to attend more of the meetings had the opportunity to gain exposure to the entire content of the intervention and to acquire the skills taught during the CBT meetings, while girls with lower attendance rates did not. Another possibility is that better therapeutic alliances may have been developed when girls were able to attend a greater number of sessions, which led to improved outcome. An additional explanation is that because of the group format of the CBT meetings, girls who attended a higher number of sessions were able to forge stronger interpersonal relationships with the group members, which may have decreased girls' sense of social isolation. While the exact mechanisms that explain why child attendance at CBT meetings predicts rate of growth of girls' depressive symptoms over time is not yet known, this finding highlights the utility of girls attending all sessions of the originally designed CBT intervention. For this study, attendance at 20 CBT meetings provided the dose necessary for girls to experience a sustained reduction in depressive symptoms.

After explaining variability in girls' growth curves using child attendance at CBT meetings, additional variation in girls' rate of growth of depressive symptoms over time

remained. This finding suggests that there were differences between girls in their depressive symptom growth trajectories that are partially explained by child attendance at CBT meetings. However, there may still be systematic between-girl differences that could be identified by evaluating other clinically relevant predictor variables and that would further inform the maintenance of treatment effects for girls with depression.

Parental Attendance at PT Meetings. The second follow-up analysis involved exploring variability in the depressive symptom growth curves of girls in the CBT+PT condition by including parental attendance at PT meetings as an explanatory variable. The underlying rationale for this follow-up analysis was that the null finding for the main part of this hypothesis could have been the result of combining all girls in the CBT+PT condition into one group and creating an average growth curve for this group, when there was substantial differential attendance of caregivers at the PT meetings, ranging from zero to eight PT meetings attended. Results from this analysis demonstrated that parental attendance at PT meetings significantly explained rate of change of girls' depressive symptoms over time. While girls whose caregivers attended the majority of PT meetings on average had a slight increase in depressive symptoms following post-treatment, they generally experienced a decline in depressive symptoms as time progressed. In contrast, girls whose caregivers attended fewer PT meetings (i.e., six or less) on average experienced a slight decrease initially in depressive symptoms, but then generally suffered from an increasingly greater rise in depressive symptoms over time with each additional meeting the caregivers were unable to attend. It is not clear why girls whose caregivers attended the majority of PT meetings experienced an initial rise in depressive

symptoms after the post-treatment assessment, while girls whose caregivers attended fewer PT meetings experienced an initial decrease in depressive symptoms. A possibility is that girls in the CBT+PT condition whose caregivers attended PT meetings had a greater level of support on the individual and family level from therapists than girls whose caregivers did not attend the PT meetings. Therefore, treatment termination may have had a larger impact on girls and caregivers who had been actively participating in PT. Thus, the initial rise in depressive symptoms could reflect the adjustment to this change. However, further research is needed to explore this trend in the data. Regarding depressive symptoms decreasing over time for girls whose caregivers attended the majority of PT meetings and increasing over time for those with low attendance rates, a potential explanation for this finding is that if caregivers were present at PT meetings, they could have acquired the intended knowledge about how to improve the family environment and support their daughter's use of CBT skills; whereas, this would not have been possible for caregivers who were unable to attend PT meetings. Overall, findings from this follow-up analysis support the positive impact of caregivers attending the majority of PT meetings offered when they are included as part of girls' depression treatment in order for girls to experience lasting treatment effects.

Considering the utility of caregivers' attendance at PT meetings in producing treatment maintenance, an examination of demographic characteristics (i.e., ethnicity, educational status, and family structure) of the caregivers who attended different numbers of PT meetings (i.e., 0, 1-3, 4-6, and 7-8) was undertaken, but did not reveal any noticeable patterns. Thus, the issue of differential parental attendance seems to be spread

across caregivers of varying ethnicities, levels of educational attainment, and family structures. Other factors that were not explored in this study may better account for caregivers who are more or less likely to attend PT meetings. Uncovering such factors would be informative and would help clinicians develop and implement techniques for enhancing attendance among caregivers that are at greater risk of exhibiting low attendance rates. It is also important to mention that variability in growth curves of depressive symptoms for girls in the CBT+PT condition remained after including parental attendance as an explanatory variable. This finding suggests that in addition to parental attendance at PT meetings there may be other clinically relevant factors that explain between-girl differences in rate of change of depressive symptoms over time for girls in the CBT+PT condition. This is an important area for future research.

Family Functioning

Girls' Ratings. The hypothesis that girls' ratings of the family functioning variables of conflict, cohesion, communication, and family sociability would change differently depending on whether their caregivers received PT was divided into two parts. The first part of this hypothesis predicted that change from pre- to post-treatment in ratings of these variables by girls in the CBT, CBT+PT, and MCC conditions would be different across experimental conditions. Assuming a significant interaction between study condition and time, at post-treatment girls in the CBT+PT condition were predicted to report less conflict and more cohesion, communication, and family sociability than girls in the CBT only and MCC conditions. There was not expected to be a difference in ratings of these family functioning variables between girls in the CBT only and MCC

conditions at post-treatment. The first part of this hypothesis was partially supported. Specifically, there were significant interactions between study condition and time for girls' ratings of cohesion (small effect size), communication (medium effect size), and family sociability (small effect size), indicating that girls' ratings of these variables changed differently from pre- to post-treatment for at least one of the treatment conditions in each of these analyses. In contrast, there was not a significant interaction between treatment condition and time for the conflict variable, which required a square root transformation to meet the normality assumption, but there was a main effect of time, in which ratings of conflict with the square root transformation for all girls on average decreased significantly from pre- to post-treatment. It is interesting that conflict as perceived by girls generally decreased from pre- to post-treatment. An explanation for this finding is that informing caregivers that their daughters had been diagnosed with a depressive disorder after the pre-treatment assessment could have resulted in caregivers viewing their daughters' behavior differently and ultimately changing the way they responded to their daughters. For example, they may have begun viewing their daughters' irritable behavior as a manifestation of depression rather than as "bad" behavior. This shift in their interpretation of their daughters' behavior could have influenced the way they related to their daughters. Findings for the variables of cohesion, communication, and family sociability, in which there were significant study condition by time interactions, will be explored in more detail to elucidate how ratings of these variables changed differently depending on whether girls were in the CBT, CBT+PT, or MCC condition.

For cohesion, girls' ratings of this variable were significantly different from pre- to post-treatment for the CBT+PT group, but not for the other two groups. While there were not significant differences at post-treatment between ratings of cohesion in the three groups, the observed trend was that girls' ratings of cohesion increased in the CBT+PT and CBT groups from pre- to post-treatment and decreased in the MCC group. Ratings of cohesion at post-treatment were highest in the CBT+PT group, followed by the CBT group, and lowest in the MCC group.

For communication, girls' ratings of communication were significantly different from pre- to post-treatment for the CBT+PT group, but not for the other two groups. There was a significant difference at post-treatment between ratings of communication by girls in the CBT+PT and MCC groups, but not between the other groups. From pre- to post-treatment, girls' communication ratings increased in the CBT+PT group and decreased in the CBT and MCC groups.

For sociability, girls' ratings of this variable changed significantly from pre- to post-treatment for the CBT+PT and CBT groups, but not for the MCC group. At post-treatment, there were no significant differences between ratings of sociability between girls in any of the groups. However, the observed trend in the data was that girls' sociability ratings in the CBT and CBT+PT conditions increased from pre- to post-treatment with the highest post-treatment rating in the CBT+PT condition, and decreased from pre- to post-treatment in the MCC group.

Findings regarding girls' perception of the family environment from pre- to post-treatment depending on the experimental condition to which they were assigned

demonstrated the positive impact that the inclusion of caregivers in girls' depression treatment has on family functioning. The purpose of PT was to improve the family environment of girls with depression, particularly in the typical areas of disturbance of families of depressed youth (i.e., conflict, cohesion, communication, and family sociability). Ratings of cohesion, communication, and family sociability increased the most for girls in the CBT+PT condition and decreased for girls in the MCC condition, while in the CBT condition cohesion and sociability increased and communication decreased. Intervention strategies incorporated into the PT condition, such as the acquisition of improved communication skills and encouragement to engage in recreational activities as a family, may have resulted in these positive changes in the family environment of girls whose caregivers received PT. Participation in CBT without a parental component also yielded some improvements in the family environment, although not to the extent that was found for the inclusion of caregivers in girls' depression treatment. Incorporating caregivers into girls' depression treatment seems to have a beneficial impact on girls' perception of the family environment from pre- to post-intervention.

The second part of this hypothesis related to whether girls' ratings of the family functioning variables would change differently over time depending on whether caregivers received PT predicted that girls in the CBT+PT condition would report less conflict and more cohesion, communication, and family sociability than girls in the CBT only condition from post-treatment through the annual follow-up assessments, which lasted up to four years post-treatment. Girls from the MCC condition were not included

in the second part of this hypothesis because they received CBT following the post-treatment assessment and could no longer function as a control group. Due to attrition, parameters estimating girls' growth curves for each of the family functioning variables towards the end of the study are based on a limited amount of data.

Results from the growth curve modeling analyses did not support this part of the hypothesis. For conflict, there was not significant between-subject variability in girls' rate of change in ratings of this variable, so testing was stopped. The rate of change in girls' ratings of cohesion and family sociability over time was not explained by whether girls were in the CBT or CBT+PT condition. For communication, treatment condition was significantly related to the rate of change over time for girls' ratings of this variable. However, this effect was not in the anticipated direction. Specifically, on average communication ratings by girls in the CBT condition increased with each year of the study, while communication ratings of girls in the CBT+PT condition decreased as the study progressed. Significant variability in girls' ratings of cohesion, communication, and family sociability from post-treatment through the follow-up time points remained after including treatment condition as an explanatory variable. This suggests that there is additional variation over time in girls' ratings of cohesion, communication, and family sociability that could be systematic and could be explained by other variables that were not evaluated in this study. This is an important area for future research that could provide useful information about how to create lasting positive changes in the family environment of depressed girls.

Primary Caregivers' Ratings. The hypothesis that primary caregivers' ratings of the family functioning variables of conflict, cohesion, communication, and family sociability would change differently depending on whether they received PT was also separated into two parts. The first part of this hypothesis predicted that change from pre- to post-treatment in ratings of these family functioning variables by primary caregivers of girls in the CBT, CBT+PT, and MCC conditions would be different across study conditions. Assuming a significant interaction between study condition and time, at post-treatment primary caregivers of girls in the CBT+PT condition were predicted to report less conflict and more cohesion, communication, and family sociability than primary caregivers of girls in the CBT only and MCC conditions. There was not expected to be a difference in ratings of these family functioning variables between primary caregivers of girls in the CBT only and MCC conditions at post-treatment. Findings from the first part of this hypothesis were partially supported. In particular, there was a significant interaction between study condition and time for primary caregivers' ratings of sociability (medium effect size), suggesting that from pre- to post-treatment primary caregivers' sociability ratings changed differently for at least one of the groups (i.e., CBT, CBT+PT, or MCC). In addition, there was a main effect of study condition for primary caregivers' ratings of communication (medium effect size), indicating that when averaging across the two time points (i.e., pre- and post-treatment) there was a significant difference in communication ratings between at least two of the treatment groups. These findings will be discussed further below. Significant interactions between study condition and time were not found for primary caregivers' ratings of conflict or cohesion. For

conflict, there was a main effect of time, in which primary caregivers' ratings of conflict in all conditions decreased from pre to post-treatment with the lowest conflict ratings at post-treatment in the CBT+PT condition. This finding is consistent with girls' ratings of conflict, which also declined for all girls from pre- to post-treatment. This finding may be the result of caregivers shifting the way they related to their daughters after being informed that their daughters had been diagnosed with a depressive disorder. For cohesion, it is important to recall that the homogeneity of variance assumption was violated, resulting in the inflation of Type II error and subsequently a reduced likelihood of finding significant results. Therefore, an inspection of the trend in the data from pre- to post-treatment for the three groups is beneficial. Cohesion ratings by primary caregivers in the CBT+PT condition increased from pre- to post-treatment and decreased during that time period for primary caregivers in the CBT and MCC conditions. At post-treatment, cohesion ratings were highest for primary caregivers in the CBT+PT condition, followed by those in the CBT condition, and were lowest for primary caregivers in the MCC condition. Thus, although significant findings were not discovered for the cohesion variable, the observed pattern in the data was in the hypothesized direction.

Returning to the results for primary caregivers' ratings of family sociability and communication, regarding family sociability, at post-treatment there was a significant difference in sociability ratings by primary caregivers in the CBT+PT and MCC conditions, but not between the other groups of primary caregivers. The overall pattern found for the sociability variable was that from pre- to post-treatment, on average sociability ratings increased the most for primary caregivers in the CBT+PT condition

and increased slightly for those in the CBT condition. In contrast, ratings of sociability by primary caregivers in the MCC condition declined from pre- to post treatment.

For primary caregivers' ratings of communication, at post-treatment significant differences were found for primary caregivers' ratings of communication between those in the CBT+PT and CBT conditions and between those in the CBT+PT and MCC conditions. A significant difference at post-treatment for ratings of communication by primary caregivers in the CBT and MCC conditions was not found. Overall, communication ratings for primary caregivers in the CBT+PT group increased from pre- to post-treatment and decreased for primary caregivers in the CBT and MCC conditions.

The findings from pre- to post-treatment for primary caregivers' ratings of the family functioning variables in this study supported the positive impact of the inclusion of caregivers in girls' depression treatment. Ratings of cohesion, communication, and family sociability by primary caregivers in the CBT+PT condition increased more than for the other groups from pre- to post-treatment. In fact, ratings of cohesion and communication by primary caregivers in the CBT and MCC conditions decreased from pre- to post-treatment, and while ratings of family sociability increased slightly for the CBT group, they decreased for the MCC group. The emphasis on improving the family environment in the PT meetings may have resulted in these positive changes in family functioning, as perceived by primary caregivers. The findings about primary caregivers' ratings of key aspects of the family environment depending on whether they received PT support the beneficial impact from pre- to post-intervention of including caregivers' in girls' depression treatment.

The second part of this hypothesis related to whether primary caregivers' ratings of the family functioning variables would change differently over time depending on whether they received PT predicted that primary caregivers of girls in the CBT+PT condition would report less conflict and more cohesion, communication, and family sociability than primary caregivers of girls in the CBT only condition from post-treatment through the annual follow-up assessments, which lasted up to four years post-treatment. Primary caregivers of girls from the MCC condition were not included in the second part of this hypothesis because the girls in this group received CBT following the post-treatment assessment and could no longer function as a control group. Due to attrition, parameters estimating primary caregivers' growth curves for each of the family functioning variables towards the end of the study are based on a limited amount of data.

Results from the growth curve modeling analyses did not support this part of the hypothesis. Since there was not significant between-subjectivity variability in rate of change of primary caregivers' ratings of conflict and family sociability over time, growth curve modeling with treatment condition as an explanatory variable was not conducted. For cohesion, although there was significant between-subject variability in rate of change of primary caregivers' ratings of this variable over time, treatment condition did not explain this variability. In contrast, treatment condition did explain rate of change over time for primary caregivers' ratings of communication. However, the observed trend in growth curve trajectories for primary caregivers' ratings of communication was not in the predicted direction. Specifically, on average while communication ratings by primary caregivers in the CBT condition increased as the study progressed, communication

ratings by primary caregivers in the CBT+PT condition decreased over time. Of noteworthy importance, variability in the growth curves of communication and cohesion remained after including treatment condition as an explanatory variable. Therefore, there may be other factors that were not assessed in this study that could explain systematic between-subject variability in rate of change over time for primary caregivers' ratings of communication and cohesion that warrant further study.

Mediational Model Testing

The last hypothesis predicted that the relation between treatment condition (i.e., CBT or CBT+PT) and girls' depressive symptoms one year following the post-treatment assessment would be mediated by girls' and primary caregivers' ratings of conflict, cohesion, communication, and family sociability at that time point. Multiple mediator models were proposed to test these relations. While the family functioning variables as rated by girls and primary caregivers one year following the post-treatment assessment did not explain the relation between treatment condition and girls' depressive symptoms at that time point, the family functioning variables of communication, cohesion, and family sociability as rated by girls at the one year follow-up time point were significantly correlated with girls' depressive symptoms at that time point. However, these family functioning variables as rated by primary caregivers and conflict as rated by both girls and primary caregivers at that time point were not associated with girls' depressive symptoms one year following the post-treatment assessment. It is possible that this null finding is related to measurement error in the family functioning scales used in this study, especially the scales of the SMRFF as well as the Conflict scale on the SMRFF-CR.

Nonetheless, girls' perception of disturbances in the areas of cohesion, communication, and family sociability were related to their depressive symptoms one year after the post-treatment assessment, which highlights the potential importance of designing depression interventions for girls that effectively improve these aspects of the family environment, while also focusing on the alleviation of depressive symptomatology.

Summary

Findings from this study contribute useful information to the current literature on treatment for girls with depression by addressing the maintenance of treatment effects from CBT both with and without a parental treatment component on girls' depressive symptoms and aspects of family functioning (i.e., conflict, cohesion, communication, and family sociability). For depressive symptoms, results support the importance of child attendance at CBT meetings and parental attendance at PT meetings as key factors that have the potential to yield a sustained reduction in girls' depressive symptoms up to four years post-treatment. This may be the result of increased rates of child attendance allowing for the acquisition of CBT skills, enhanced therapeutic alliances, or the development of meaningful relationships with group members. This study also revealed that there is additional variation in girls' depressive symptom growth trajectories that is not explained by child or parental attendance, suggesting that the variability in rate of change of girls' depressive symptoms over time could be explained by other clinically relevant, theoretically meaningful variables that were not evaluated in this study. Discovering other factors that explain the variation in how girls' depressive symptoms

change over time could further inform the literature on the maintenance of treatment effects for early adolescent girls with depression.

In regards to family functioning, findings from this study generally supported the positive impact of CBT with a parental treatment component on the family environment as perceived by girls and their primary caregivers from pre- to post-treatment, albeit occasionally only in terms of the observed trend of the data. Using larger sample sizes and evaluating other factors not explored in this study may further elucidate the effect of the parental component of treatment on the pre- to post-intervention shifts in family functioning ratings. The emphasis within PT on improving the family environment through intervention strategies, such as the acquisition of improved communication skills and encouragement to engage in recreational activities as a family, may have resulted in the beneficial impact on the family environment from the inclusion of caregivers in girls' depression treatment.

From post-treatment through the four years of annual follow-up assessment, this study did not find that participation in the CBT+PT condition led to added benefits in the family environment in the known areas of disturbance for youth with depression (i.e., conflict, cohesion, communication, and family sociability) as perceived by girls and their primary caregivers. Since additional variability remained in the rate of change over time for some of the family functioning variables, it may be useful to continue analyzing these data to search for other factors that explain this between-subject variation. Nonetheless, one year following the post-treatment assessment girls' ratings of cohesion, communication, and family sociability were significantly related to girls' depressive

symptoms at that time point, in that higher ratings on these variables were associated with lower levels of depressive symptoms. Therefore, designing depression interventions for girls that effectively improve these aspects of the family environment while also focusing on the alleviation of depressive symptomatology may help foster lasting treatment gains.

Integration of Findings with Previous Research

Findings from this study bolster and expand the existing literature about the maintenance of treatment effects for girls with depression. A gap has existed in the literature about intervention strategies and accompanying factors that promote a sustained reduction in girls' depressive symptoms following treatment for depression. This gap can be conceptualized as deriving from the limited number of clinical trials of depression treatment that involve the collection of longitudinal data as well as a dearth of strategies that have been found to produce the maintenance of treatment effects for girls with depression.

This study attempted to lessen this gap in the literature by evaluating the long-term impact (i.e., up to four years post-treatment) of a depression intervention for early adolescent girls. To assess an intervention approach that might produce an extended reduction in depressive symptoms, the family context was targeted because it is highly salient to girls' development (Kavanagh & Hops, 1994) and because disturbances in family functioning, particularly in the areas of conflict, cohesion, communication, and family sociability, are associated with initial onset and maintenance of depressive disorders among youth (Messer & Gross, 1995; Puig-Antich et al., 1985; Stark et al., 1990; Stark et al., 1993). Prior research had not yet established whether there were added

benefits to incorporating primary caregivers into girls' depression treatment, since they have rarely been included in clinical trials of depression treatment for children and adolescents (Sander & McCarty, 2005). Therefore, this study assessed whether the inclusion of caregivers in girls' depression treatment by providing them with PT resulted in the maintenance of treatment effects. In addition, aspects of the family environment (i.e., conflict, cohesion, communication, and family sociability) as perceived by girls and their primary caregivers were examined over time because of their known relation to childhood depressive disorders. An integration of the findings from this study with the current literature on the topic of treatment maintenance for youth with depression will be reviewed, beginning with the findings related to girls' depressive symptoms and followed by those involving the family environment.

Girls' Depressive Symptoms

In this study, the two factors that influenced the rate of change of girls' depressive symptoms from post-treatment through the four years of follow-up assessment were child attendance at CBT meetings and parental attendance at PT meetings. Specifically, greater child attendance was related to a decline in depressive symptoms over time; whereas, each session missed by girls was predictive of increasingly higher levels of re-emergent depressive symptoms. Regarding parental attendance, when caregivers were involved in girls' depression treatment through receiving PT and attended the majority of meetings designed for them, girls generally experienced a sustained reduction in depressive symptoms as time progressed. This finding is groundbreaking, in that other intervention strategies have not produced lasting treatment gains related to girls' depressive

symptoms. Factors known to influence the maintenance of treatment effects for adults with depression were incorporated into the CBT intervention in this study and included emphasis on treatment fidelity through the use of a manualized intervention with close supervision from the PI who developed the intervention, modification of girls' negative explanatory style, use of a skills training perspective, and practice applying skills to potential future problems.

With cognizance that child and parental attendance significantly influenced the maintenance of treatment effects for girls in this study, a description of what is known about child and parental attendance for child and adolescent therapy is beneficial. Attendance in therapy has been referred to as one of the most fundamental requirements for effective treatment delivery, especially because most evidence-based treatments for youth are directive, skills-based approaches that necessitate active child and primary caregiver attendance throughout the course of treatment (Nock & Ferriter, 2005). Although attendance is such an essential aspect of psychotherapy, there are few controlled, clinical trials that have assessed techniques for enhancing attendance in child therapy (Nock, & Ferriter).

There is an apparent need for a deeper understanding of varying levels of child and parental attendance, so that techniques can be employed to heighten attendance for all people involved in a youngster's depression treatment. In child therapy, it is typically the primary caregiver's responsibility to manage treatment attendance. This study evaded this issue by delivering therapy to girls at school. Attendance at CBT meetings for girls ranged from 12 to 20 CBT meetings. These attendance rates are relatively good,

considering that in child and adolescent therapy 40% to 60% of families cease treatment prematurely against the advice of the therapist (Kazdin, 1996; Wierzbicki & Pekarik, 1993). Although attendance is a serious issue in clinical practice, only 1% to 2% of attrition studies have focused on child therapy (Pekarik & Stephenson, 1988). Therefore, additional research is needed to find methods for reducing attrition in child and adolescent therapy. Providing CBT within the school setting seems to be a promising strategy for maximizing child attendance.

The importance of primary caregivers in youth's depression treatment cannot be underestimated, as primary caregivers choose whether to grant permission for their child to participate in therapy. In addition, their attendance at the parental component of treatment is needed, considering that their active involvement in this study resulted in lasting treatment gains related to girls' depressive symptoms. For the caregiver of each girl that attended the most PT meetings, attendance varied substantially from zero to eight meetings attended. To better comprehend factors related to parental attendance in this study, an exploration of the demographic characteristics of ethnicity, educational status, and family structure among these caregivers was undertaken, but did not differentiate between those who were more or less likely to attend PT meetings. In fact, the majority of research on predictors of treatment attendance at adult therapy has studied demographic characteristics (e.g., gender, age, and distance from clinic) in an attempt to explain attendance (Nock & Ferriter, 2005). However, these demographic variables typically are not consistent predictors of attendance for child therapy (Armbruster & Kazdin, 1994; Pekarik & Stephenson, 1988). Plus, identification of common

demographic variables that predict attendance does not help clinicians and researchers know why these people are less likely to attend treatment, which is an important piece of information in order to create strategies for enhancing attendance.

Kazdin and colleagues (Kazdin, Holland, & Crowley, 1997; Kazdin & Wassell, 1999) have taken a different approach to studying attendance, in which they have sought to understand why youth and families do not attend treatment. They developed and have been evaluating a barriers to treatment model that is specific to child therapy. This model posits that families face obstacles to participating in treatment and that these experiences increase the risk of reduced attendance. Their barriers to treatment model categorizes barriers into four primary domains: (1) the experience of obstacles and stressors, (2) a poor alliance with the therapist, (3) the belief that treatment is not relevant, and (4) the perception that treatment is overly demanding. This is a useful model for comprehending the issue of attendance for child therapy. Approaches to enhancing attendance can be drawn from this model.

There have been approximately 12 controlled, clinical trials examining strategies for increasing attendance and adherence to child therapy (see Nock & Ferriter, 2005, for review). Although the underlying theoretical frameworks of the strategies assessed in these studies differ, the strategies either were interventions that incorporated attendance enhancing strategies only in the beginning stages of treatment or were interventions that implemented attendance enhancing strategies throughout treatment. Based on the review of current studies evaluating attendance enhancing strategies as well as the present state of the literature on attendance at child therapy, it is clear that additional research is

needed that continues to identify key factors that predict and explain treatment attendance and that involves the development and evaluation of approaches to enhancing treatment attendance (Nock & Ferriter).

Family Functioning

In terms of findings from this study about the family environment, the combination of CBT and PT generally resulted in more positive changes in the family environment in the areas of conflict, cohesion, communication, and family sociability as perceived by girls and primary caregivers from pre- to post-treatment relative to the CBT only and MCC conditions. However, the pattern of improved family functioning in the CBT+PT condition compared to the CBT only condition did not last during the four years of follow-up assessment. Additional variability in girls' and primary caregivers' rate of change for ratings of some of the family functioning variables remained unexplained. Therefore, continuing to study this phenomenon in the future would be a beneficial addition to the existing literature on treatment for youth with depression.

Findings from this study support previous research that disturbances within the family environment, particularly in the areas of communication, cohesion, and family sociability, are associated with depressive symptoms in youth (Messer & Gross, 1995; Puig-Antich et al., 1985; Stark et al., 1990; Stark et al., 1993). These family functioning variables as rated by girls fit with prior research; yet, ratings of these aspects of the family environment by primary caregivers and conflict as rated by both girls and primary caregivers were not associated with girls' depressive symptoms at the one year follow-up time point. This is an interesting finding, since the relation between these family

functioning variables and depressive symptoms have been identified in previous research (Normura et al., 2002; Stark et al., 1990; Stark et al., 1993). Nonetheless, considering that girls' ratings of communication, cohesion, and family sociability were associated with depressive symptoms, developing interventions for girls with depression and their primary caregivers that effectively target these aspects of family functioning in addition to girls' depressive symptoms may be a promising approach to fostering lasting treatment gains. However, further research is required to determine how to improve these areas of family functioning in the long-term and whether positive changes in these areas of the family environment are associated with a sustained reduction in girls' depressive symptoms.

Model of Maintenance of Treatment Effects

Based on findings from this study, a proposed model of the maintenance of treatment effects for early adolescent girls with depression involves the use of CBT delivered in a group format to treat girls diagnosed with a depressive disorder. An individual format may also yield sustained treatment effects, but requires further study. It seems critical that girls attend the majority of CBT meetings offered and that primary caregivers are incorporated into girls' depression treatment by receiving PT. Primary caregivers' attendance at PT meetings is crucial, since their attendance combined with girls' attendance at CBT meetings may allow for the acquisition of skills that can be used to effectively assuage girls' depressive symptoms. Factors known to influence treatment maintenance for adults with depression were incorporated into the CBT intervention in this study and included emphasis on treatment fidelity, modification of an individual's

negative explanatory style, use of a skills training perspective, and practice applying skills to potential future problems (Hollon et al., 1990; Hollon et al., 1992). While these particular factors were not evaluated in this study, their inclusion in depression interventions for youth seems useful and may contribute to lasting treatment gains. Furthermore, targeting areas of disturbance in families of girls during treatment for depression seems beneficial because the family environment is highly related to girls' depressive symptoms. However, strategies for promoting lasting positive effects within the family context require further development and investigation. Additional factors that may influence treatment maintenance, such as the use of booster sessions following acute treatment for depression, should also be evaluated in future research to continue developing the model for the maintenance of treatment effects for early adolescent girls with depression.

Limitations

Several limitations exist within this study and are important to discuss. First, there was substantial attrition towards the end of this study, as is common in the collection of longitudinal data. Therefore, parameters used to estimate the average patterns in the data at later time points may not be reliable. It is impossible to ascertain whether these parameters are accurately representing the population because of the amount of missing data. Therefore, findings related to the end of the study should be interpreted with caution.

Second, a major limitation of this study is that attendance at child and primary caregiver booster sessions was not available at the time this dissertation was written.

Attendance at booster sessions may explain additional variability in girls' depressive symptom growth curves as well as girls' and primary caregivers' ratings of the family functioning variables over time. The utility of booster sessions should be explored in future research, as the continuation with booster sessions following acute treatment for depression may contribute to the maintenance of reduced depressive symptoms and improvements in the family environment.

Third, scales of the SMRFF, which measure the areas of family functioning as rated by primary caregivers, have variable reliability estimates at the different time points of the study. In particular, the Conflict scale had a large range of reliability estimates, spanning from unacceptable to adequate. Thus, findings including this variable may not accurately capture this aspect of the family environment.

Fourth, there was not a control condition, which was used to compare findings related to depressive symptoms and areas of family functioning beyond the post-treatment assessment. While a control condition would be helpful in further exploring the maintenance of treatment effects, it did not seem ethical to withhold evidence-based treatment for girls with depression beyond the length of the CBT intervention in order to study change over time in girls' depressive symptoms and the family environment as perceived by girls and their primary caregivers.

Fifth, there are limitations to this study stemming from the sample. For the child participants, only early adolescent females were included in the present study. Therefore, findings from this study may not be generalizable to male youth. Because limited research exists on factors affecting the maintenance of treatment effects for youth with

depression, the results from this study may provide a basis for subsequent research with male participants. In addition, a few girls in this study were prescribed anti-depressant medication by the study's treating psychiatrists while they were participants, as described in the Method section. Their data were included with the other girls who did not receive medication. This is a confounding factor that must be acknowledged. Regarding the primary caregiver participants, the majority of those that completed measures were maternal caregivers. Obtaining the perspectives of paternal caregivers as well as maternal caregivers for each girl would be of great value.

Implications

Despite the aforementioned limitations, the results of the current study have important implications for clinical practice and future research. Findings from this study contribute useful information to the development of a model for the maintenance of treatment effects for girls with depression that can be used to inform clinical practice. Specifically, this study found that attendance by girls at CBT meetings is beneficial for sustaining lasting treatment effects on girls' depressive symptoms. In addition, the incorporation of primary caregivers into girls' depression treatment in the form of PT has positive effects on the family environment from pre- to post-intervention. Furthermore, when primary caregivers attend the majority of PT meetings, girls are more likely to experience a sustained reduction in depressive symptoms over time. Compared to depression treatment without a parental component, the inclusion of primary caregivers in girls' depression treatment did not lead to added benefits in the common areas of disturbance in families of depressed youth (i.e., conflict, cohesion, communication, and

family sociability) during the four years of follow-up assessment. However, girls' perceptions of cohesion, communication, and family sociability within their family one year following the post-treatment assessment were associated with level of depressive symptoms at that time point. In particular, higher ratings of cohesion, communication, and family sociability were related to lower levels of depressive symptoms. Therefore, finding ways to improve those areas of family functioning over time may help yield a sustained reduction in girls' depressive symptoms. Findings from this study begin to provide a platform for evidence-based intervention for girls with depression, from which the development of treatment guidelines can be undertaken. It is also important to note that from its conception, the CBT intervention for girls and the PT component for primary caregivers in this study were manualized to provide facilitated dissemination into clinical practice if deemed appropriate at the end of the larger depression intervention study.

While this study adds important information to the existing literature on the maintenance of treatment effects for girls with depression, this study also uncovered additional questions for future research. It will be crucial to continue developing the model for the maintenance of treatment effects for girls with depression. The notion of whether booster sessions contribute to a sustained reduction in depressive symptoms is a useful avenue for further study. In addition, future research is required to identify other clinically relevant, theoretically meaningful factors that explain rate of change of girls' depressive symptoms and aspects of the family environment over time as perceived by girls and primary caregivers. These factors may include but are not limited to

comorbidity, child age during treatment, quality of therapeutic alliance, motivation to engage in treatment, and expectancy for change. Furthermore, continuing to study how to enhance the attendance of girls and primary caregivers during treatment for depression is paramount, considering that their attendance is a basic necessity for effective treatment delivery. In addition, determining whether there is a differential impact on treatment maintenance depending on whether one caregiver compared to all caregivers in the home attend PT meetings would be helpful information for advancing treatment for depressed girls. This study also highlighted the issue of measurement error related to assessing constructs in the family environment. The development of psychometrically sound measures for evaluating key areas of family functioning would be beneficial to the field of child psychology and could improve research involving the family context. Finally, identifying whether the factors that yielded treatment maintenance in this study extend to depression treatment for boys is a useful direction for future research that could inform the development of treatment guidelines for boys with depression.

Conclusions

The current study sought to advance the literature on treatment of depression in early adolescent girls by addressing gaps related to the maintenance of treatment effects and the impact of parental involvement on girls' depression treatment. This study explored the longitudinal impact of a school-based, group-administered CBT intervention with and without a PT component on girls' depressive symptoms and key areas of family functioning (i.e., conflict, cohesion, communication, and family sociability). Findings from this study extend the existing literature about depression treatment for girls and

contribute important information to the development of a model for the maintenance of treatment effects. In addition, this study uncovered additional areas for future research.

The two factors associated with treatment maintenance in this study were child attendance at CBT meetings and parental attendance at PT meetings. These factors influenced the rate of change of girls' depressive symptoms from post-treatment through the four years of follow-up assessment. Specifically, greater child attendance was related to a steady decline in depressive symptoms over time; whereas, each CBT meeting missed by girls was predictive of increasingly higher levels of re-emergent depressive symptoms before their depressive symptoms eventually decreased towards the end of the study. When primary caregivers were involved in girls' depression treatment through receiving PT and attended the majority of meetings designed for them, girls generally experienced a sustained reduction in depressive symptomatology. This finding is groundbreaking, as other intervention strategies have not resulted in lasting treatment gains related to girls' depressive symptoms. Subsequent research about enhancing child and parental attendance is needed, as these factors have a significant impact on treatment maintenance.

Regarding family functioning, findings from this study generally support the positive impact of CBT with a parental treatment component on the family environment as perceived by girls and their primary caregivers from pre- to post-treatment, although occasionally only in terms of the observed trend of the data. From post-treatment through the four years of annual follow-up assessment, this study did not find that participation in the CBT+PT condition led to added benefits in the known areas of disturbance in families

of depressed youth (i.e., conflict, cohesion, communication, and family sociability) as perceived by girls and their primary caregivers. However, one year following the post-treatment assessment girls' ratings of cohesion, communication, and family sociability were significantly related to their level of depressive symptoms at that time point, in that higher ratings on these variables were associated with reduced depressive symptomatology. Discovering ways to improve those areas of family functioning over time may yield a sustained reduction in girls' depressive symptoms and is therefore a useful avenue for future research.

Since additional variability remained in the rate of change in girls' depressive symptoms and some of the family functioning variables in this study as rated by girls and their primary caregivers over time, it would be helpful for subsequent research to continue analyzing factors that affect girls' depressive symptoms and aspects of the family environment using clinically relevant, theoretically meaningful explanatory variables.

Based on findings from this study, a proposed model of the maintenance of treatment effects for girls with depression involves the use of CBT along with the inclusion of primary caregivers in treatment through PT to effectively treat girls' depression and produce lasting treatment gains. Attendance of girls and primary caregivers seems crucial, since their attendance may allow for the acquisition of skills that can be used to help girls maintain reduced depressive symptoms as time progresses. In addition, targeting areas of disturbance in families of girls during treatment for depression seems beneficial because the family environment is highly related to girls'

depressive symptoms over time. However, strategies for promoting lasting positive effects within the family context require further development and investigation.

This study expanded the current literature about treatment for girls with depression by identifying factors related to the maintenance of treatment effects for this population and by exploring the impact of parental involvement in girls' treatment on depressive symptoms and the family environment. Findings from this study begin to provide a platform for evidence-based intervention for girls with depression, from which the development of treatment guidelines can be undertaken. Given that depression is prevalent among youth and this study highlighted areas for future research, it is hoped that continued exploration of these important research questions will be pursued in attempt to further advance knowledge about the maintenance of treatment effects for children and adolescents with depression.

Appendix A

DSM-IV TR Diagnostic Criteria for Depressive Disorders

DSM-IV TR Criteria for Major Depressive Disorder

A. Five (or more) of the following symptoms must be present during the same 2-week period and represent Presence of a one or more Major Depressive Episodes (to be considered separate episodes, there must be an interval of 2 consecutive months in which criteria are not met for a Major Depressive Episode).
B. Major Depressive Episode is not better accounted for by Schizoaffective Disorder and is not superimposed on Schizophrenia, Schizophreniform Disorder, Delusional Disorder, or Psychotic Disorder Not Otherwise Specified.
C. There has never been a Manic Episode, Mixed Episode, or Hypomanic Episode.

DSM-IV Criteria for Major Depressive Episode

A. Five (or more) of the following symptoms must be present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood, or (2) loss of interest or pleasure.
   1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). **Note: in children and adolescents, can be irritable mood**.
   2. markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others).
   3. significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. **Note: in children, consider failure to make expected weight gains**.
   4. insomnia or hypersomnia nearly every day.
   5. psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).
   6. fatigue or loss of energy nearly every day.
   7. feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).
   8. diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).
   9. recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.
B. The symptoms do not meet criteria for a Mixed Episode.
C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
D. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).

E. The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.

DSM-IV TR Criteria for Dysthymic Disorder

A. Depressed mood for most of the day, for more days than not, as indicated either by subjective account of observation by others, for at least 2 years. **Note: In children and adolescents, mood can be irritable and duration must be at least 1 year.**
B. Presence, while depressed, of two (or more) of the following:
   1. Poor appetite or overeating
   2. Insomnia or hypersomnia
   3. Low energy or fatigue
   4. Low self-esteem
   5. Poor concentration or difficulty making decisions
   6. Feelings of hopelessness
C. During the 2-year period (1 year for children or adolescents) of the disturbance, the person has never been without the symptoms in Criteria A and B for more than 2 months at a time.
D. No Major Depressive Episode has been present during the first 2 years of the disturbance
E. There has never been a Manic Episode, a Mixed Episode, or a Hypomanic Episode, and criteria have never been met for Cyclothymic Disorder.
F. The disturbance does not occur exclusively during the course of a chronic Psychotic Disorder, such as Schizophrenia or Delusional Disorder.
G. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).
H. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

DSM-IV TR Criteria for Depressive Disorder Not Otherwise Specified

A. A mood disturbance, defined as follows:
   1. At least two (but less than five) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (a) or (b):
      a. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). **Note: in children and adolescents, can be irritable mood**.
      b. markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others).

c. significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. **Note: in children, consider failure to make expected weight gains**.

d. insomnia or hypersomnia nearly every day.

e. psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).

f. fatigue or loss of energy nearly every day.

g. feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self reproach or guilt about being sick).

h. diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).

i. recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

2. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

3. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).

4. The symptoms are not better accounted for by Bereavement.

B. There has never been a Major Depressive Episode, and criteria is not met for Dysthymic Disorder.

C. There has never been a Manic Episode, a Mixed Episode, or a Hypomanic Episode, and criteria are not met for Cyclothymic Disorder.

D. The mood disturbance does not occur exclusively during Schizophrenia, Schizophreniform Disorder, Schizoaffective Disorder, Delusional Disorder, or Psychotic Disorder Not Otherwise Specified.

Appendix B

Original Sample of Child and Primary Caregiver Participants

Child Participants

The original sample of 151 girls ranged in age from 9 to 14 years old (M = 10.68, SD = 1.30) and were enrolled in grades 4 through 7 (27.8% in fourth grade, 25.8 % in fifth grade, 23.8% in sixth grade, 21.9% in seventh grade, and 0.7% unknown) in two school districts in central Texas. Ethnicity of the girls was provided by self-report with 39.7% White NonHispanic, 37.7% White Hispanic, 10.6% African American, 2.0% Asian, 0.7% American Indian, 7.9% Multi-Racial, and 1.3% unknown. The following two tables present demographic characteristics of the original sample of child participants and information about the family structure of these participants.

Child Demographic Variables for Original Sample

Variable	n	Percent
Age		
9	35	23.2
10	37	24.5
11	33	21.9
12	32	21.2
13	12	8.0
14	1	0.7
Unknown	1	0.7
Grade		
4	42	27.8
5	39	25.8
6	36	23.8
7	33	21.9
Unknown	1	0.7
Ethnicity		
White NonHispanic	60	39.7
White Hispanic	57	37.7
African American	16	10.6
Asian	3	2.0
American Indian	1	0.7
Multi-Racial	12	7.9
Unknown	2	1.3

Family Structure for Original Sample of Child Participants

Family Structure	n	Percent
Intact Family	56	37.1
Biological Parents	52	92.9
Grandparents	3	5.4
Other	1	1.8
Additional Children		
Yes	47	83.9
No	9	16.1
Single Parent Family	29	19.2
Single Mother	21	72.4
Single Father	8	27.6
Additional Children		
Yes	22	75.9
No	7	24.1
Stepfamily	26	17.2
Stepfather	21	80.8
Stepmother	5	19.2
Additional Children		
Yes	20	76.9
No	6	23.1
Multi-Adult Household	37	24.5
Relatives	24	64.9
Relatives and Non-Related Adults	13	35.1
Additional Children		
Yes	30	81.1
No	7	18.9
Unknown	3	2.0

Of the original sample of child participants, 78.1% (n = 118) had MDD, 13.9% (n = 21) had DD, 2.0% (n = 3) had DDNOS, and 6.0% (n = 9) had DD and MDD. The mean level of depressive symptoms at pre-treatment, as measured by the total depression score on the K-SADS-P IVR, was 37.92 (*SD* = 8.53). Calculations of the prevalence of comorbidity in this sample indicated that 30.5% (n = 46) had 2 psychological disorders and 23.2% (n = 35) had 3 or more diagnoses. The remainder of the girls (46.4%; n = 70) had one diagnosis. The following table lists comorbid diagnoses for girls with two and three or more psychological disorders along with the number of child participants from the original sample that met criteria for these comorbid diagnoses.

Comorbidity for Original Sample of Child Participants

# of Diagnoses	Comorbid Diagnoses	n
2		
	Generalized Anxiety Disorder (GAD)	27
	Attention-Deficit/Hyperactivity Disorder (ADHD)	7
	Anxiety Disorder NOS	3
	Separation Anxiety Disorder	4
	Specific Phobia	3
	Panic Disorder	1
	Adjustment Disorder with Anxiety	1
	Oppositional Defiant Disorder (ODD)	1
3 or More		
	GAD, ADHD	8
	GAD, Specific Phobia	4
	GAD, Social Phobia	3
	GAD, Post-traumatic Stress Disorder (PTSD)	1
	Separation Anxiety, GAD	2
	Separation Anxiety, ADHD	1
	Separation Anxiety, Anxiety Disorder NOS	1
	ADHD, Anxiety Disorder NOS	1
	ADHD, Specific Phobia	1
	ADHD, ODD	1
	Specific Phobia, PTSD	1
	Specific Phobia, Social Phobia	1
	Specific Phobia, Separation Anxiety	1
	Specific Phobia, GAD, ADHD	1
	PTSD, Eating Disorder	1
	PTSD, Specific Phobia, GAD	1
	PTSD, Social Phobia, ADHD	1
	PTSD, Social Phobia, GAD	1

Note. All child participants had a diagnosis of a depressive disorder.

Primary Caregiver Participants with Completed Measures

The original sample of 141 primary caregivers that completed measures was comprised of 88.7% maternal caregivers and 11.3% paternal caregivers. Of these primary caregivers, there were 82.3% biological mothers, 11.3% biological fathers, 1.4% stepmothers, 3.5% grandmothers, 0.7% adoptive mothers, and 0.7% sisters. The ethnic composition of the primary caregivers was 44.0% White NonHispanic, 36.2% White Hispanic, 11.3% African American, 2.1% Asian, 0.7% American Indian, 3.5% Multi-Racial, and 2.1% unknown. Educational status of the primary caregivers ranged from less than high school to an advanced degree with 2.1% stopping before high school, 6.4% finishing some high school, 12.8% completing high school/GED, 30.5% finishing some college/junior college, 10.6% graduating from a 4-year college, 5.0% obtaining an advanced degree, and 32.6% unknown. The following table presents demographic information for the original sample of primary caregivers that completed measures.

Demographic Variables for Original Sample of Primary Caregivers with Completed Measures

Variable	n	Percent
Primary Caregivers		
Maternal Caregiver	125	88.7
Biological Mother	116	82.3
Stepmother	2	1.4
Grandmother	5	3.5
Adoptive Mother	1	0.7
Sister	1	0.7
Paternal Caregiver	16	11.3
Biological Father	16	11.3
Ethnicity		
White NonHispanic	62	44.0
White Hispanic	51	36.2
African American	16	11.3
Asian	3	2.1
American Indian	1	0.7
Multi-Racial	5	3.5
Unknown	3	2.1
Educational Status		
Less than high school	3	2.1
Some high school	9	6.4
Finished high school/GED	18	12.8
Some college/junior college	43	30.5
Finished 4 year college	15	10.6
Advanced Degree	7	5.0
Unknown	46	32.6

Caregivers in CBT+PT Condition

The original sample of caregivers in the CBT+PT condition included 89 primary caregivers with 54.0% maternal caregivers and 46.0% paternal caregivers. While all girls had a maternal caregiver, 7 girls had no paternal caregiver. Of the maternal caregivers, 97.9% were biological mothers and 2.1% were stepmothers. Of the paternal caregivers, 60.4% were biological fathers, 16.7% were stepfathers, and 8.3% were the mother's boyfriend. The ethnic composition of the caregivers was 43.8% White NonHispanic, 27.0% White Hispanic, 10.1% African American, 4.5% Asian, and 14.6% unknown. Educational status of the caregivers ranged from less than high school to an advanced degree with 1.1% stopping before high school, 1.1% finishing some high school, 11.2% completing high school/GED, 23.6% finishing some college/junior college, 11.2% graduating from a 4-year college, 6.7% obtaining an advanced degree, and 44.9% unknown. The following table presents demographic information for the original sample of caregivers who were in the CBT+PT condition.

Demographic Variables for Original Sample of Caregivers in CBT+PT Condition

Variable	n	Percent
Caregivers		
Maternal Caregiver	48	54.0
Biological Mother	47	97.9
Stepmother	1	2.1
Paternal Caregiver	41	46.0
Biological Father	29	60.4
Stepfather	8	16.7
Mother's Boyfriend	4	8.3
Ethnicity		
White NonHispanic	39	43.8
White Hispanic	24	27.0
African American	9	10.1
Asian	4	4.5
Unknown	13	14.6
Educational Status		
Less than high school	1	1.1
Some high school	1	1.1
Finished high school/GED	10	11.2
Some college/junior college	21	23.6
Finished 4 year college	10	11.2
Advanced Degree	6	6.7
Unknown	40	44.9

Appendix C

Children's Depression Inventory

Kids sometimes have different feelings and ideas.

This form lists the feelings and ideas in groups. From each group of three sentences, pick one that describes you **best** for the past two weeks. After you pick a sentence from the first group, go on to the next group.

There is no right answer or wrong answer. Just pick the sentence that best describes the way you been recently. Put a mark like this X next to your answer. Put the mark in the box next to the sentence you pick.

1. I am sad once in a while.
   I am sad many times.
   I am sad all the time.

2. Nothing will ever work out for me.
   I am not sure if things will work out for me.
   Things will work out for me O.K.

3. I do most things O.K.
   I do many things wrong.
   I do everything wrong.

4. I have fun in many things.
   I have fun in some things.
   Nothing is fun at all.

5. I am bad all the time.
   I am bad many times.
   I am bad once in a while.

6. I think about bad things happening to me once in a while.
   I worry that bad things will happen to me.
   I am sure that terrible things will happen to me.

7. I hate myself.
   I do not like myself.
   I like myself.

8. All bad things are my fault.
   Many bad things are my fault.
   Bad things are not usually my fault.

9. I do not think about killing myself.
   I think about killing myself but I would not do it.
   I want to kill myself

10. I feel like crying every day.
    I feel like crying many days.
    I feel like crying once in a while.

11. Things bother me all the time.
    Things bother me many times.
    Things bother me once in a while.

12. I like being with people.
    I do not like being with people many times.
    I do not want to be with people at all.

13. I cannot make up my mind about things.
    It is hard to make up my mind about things.
    I make up my mind about things easily.

14. I look O.K.
    There are some bad things about my looks.
    I look ugly.

15. I have to push myself all the time to do my schoolwork.
    I have to push myself many times to do my schoolwork.
    Doing schoolwork is not a big problem.

16. I have trouble sleeping every night.
    I have trouble sleeping many nights.
    I sleep pretty well.

17. I am tired once in a while.
    I am tired many days.
    I am tired all the time.

18. Most days I do not feel like eating.
    Many days I do not feel like eating.
    I eat pretty well.

19. I do not worry about aches and pains.
    I worry about aches and pains many times.
    I worry about aches and pains all the time.

20. I do not feel alone.
I feel alone many times.
I feel alone all the time

21. I never have fun at school.
I have fun at school only once in a while.
I have fun at school many times.

22. I have plenty of friends.
I have some friends but I wish I had more.
I do not have any friends.

23. My schoolwork is alright.
My schoolwork is not as good as before.
I do very badly in subjects I used to be good in.

24. I can never be as good as other kids.
I can be as good as other kids if I want to.
I am just as good as other kids.

25. Nobody really loves me.
I am not sure if anybody loves me.
I am sure that somebody loves me.

26. I usually do what I am told.
I do not do what I am told most of the times.
I never do what I am told.

27. I get along with people.
I get into fights many times.
I get into fights all the time.

Appendix D

Beck Depression Inventory for Youth

Name:_____

Here is a list of things that happen to people and that people think or feel. Read each sentence carefully, and circle the one word (Never, Sometimes, Often, or Always) that tells about you best, especially in the last two weeks. THERE ARE NO RIGHT OR WRONG ANSWERS.

		0	1	2	3
1.	I think that my life is bad.	Never	Sometimes	Often	Always
2.	I have trouble doing things.	Never	Sometimes	Often	Always
3.	I feel that I am a bad person.	Never	Sometimes	Often	Always
4.	I wish I were dead.	Never	Sometimes	Often	Always
5.	I have trouble sleeping.	Never	Sometimes	Often	Always
6.	I feel no one loves me.	Never	Sometimes	Often	Always
7.	I think bad things happen because of me.	Never	Sometimes	Often	Always
8.	I feel lonely.	Never	Sometimes	Often	Always
9.	My stomach hurts.	Never	Sometimes	Often	Always
10.	I feel like bad things happen to me.	Never	Sometimes	Often	Always
11.	I feel like I am stupid.	Never	Sometimes	Often	Always
12.	I feel sorry for myself.	Never	Sometimes	Often	Always
13.	I think I do things badly.	Never	Sometimes	Often	Always
14.	I feel bad about what I do.	Never	Sometimes	Often	Always
15.	I hate myself.	Never	Sometimes	Often	Always
16.	I want to be alone.	Never	Sometimes	Often	Always
17.	I feel like crying.	Never	Sometimes	Often	Always
18.	I feel sad.	Never	Sometimes	Often	Always
19.	I feel empty inside.	Never	Sometimes	Often	Always
20.	I think my life will be bad.	Never	Sometimes	Often	Always

Appendix E

Diagnostic and Statistical Manual Brief Symptom Interview for Depression

Symptoms: Ask about symptoms being present most days for THE LAST TWO WEEKS, INCLUDING TODAY.	**Symptom IS present (√)**	**Symptom NOT present (√)**
1. Have you been feeling sad, unhappy, blue, or down in the dumps for a lot of the day?	❒	❒
2. Have you been feeling irritable, cranky, or easily annoyed for a lot of the day	❒	❒
3. Have you been less interested in doing things like hobbies or sports?	❒	❒
4. Have you been enjoying hobbies or interests less that you did in the past?	❒	❒
5. Have you noticed a change in your appetite (eating more or less than usual)? Has your weight changed or do your clothes fit differently?	❒	❒
6. Have you had any trouble with your sleep, such as falling asleep, waking up at night, or waking too early?	❒	❒
7. Have you been having trouble with your sleep, in that you are sleeping a lot more than usual lately?	❒	❒
8. Do you feel like you still need sleep or rest, even if you got a full night's sleep?	❒	❒
9. Do you feel like you have no energy, or not as much energy as usual?	❒	❒
10. Do you feel restless or fidgety, that you have a hard time sitting still?	❒	❒
11. Have you felt slowed down, like you are moving in slow motion or your movements are not as quick as usual?	❒	❒
12. Have you had trouble concentrating or paying attention, like your mind is "in a fog?" Or trouble making decisions?	❒	❒
13. Have you felt guilty about things lately?	❒	❒
14. Have you felt hopeless, like things won't work out for you, or that you will always feel bad?	❒	❒
15. Have you felt worthless, inadequate, or like you are no good lately?	❒	❒
16. Have you had thoughts of death or dying?	❒	❒
17. Have you had thoughts of wanting to hurt yourself? (or someone else)	❒	❒
18. Have you done anything to hurt yourself, such as make a mark on your skin?	❒	❒
TOTAL "PRESENT" Items 1-18		

Appendix F

Self-Report Measure of Family Functioning- Child Revised/ Self-Report Measure of Family Functioning

Note: The following directions are for the SMRFF-CR. The items presented below are used for both the SMRFF and the SMRFF-CR.

Directions:

Please read each sentence carefully. Indicate how true the sentence is of your family by circling one of the following:

Never True A Little True Sometimes True Mostly True Very True

If you do not think that the sentence ever describes your family, then circle Never True. If you think that the sentence is true of your family once-in-a-while, then circle the words A Little True. If you think that the sentence is true of your family sometimes, then circle the words Sometimes True. If you think that the sentence is true of your family lots of times, then circle the words Mostly True. If the sentence describes how your family is all of the time, then circle the words Very True.

Let's try an example together:
1. Everyone takes turns doing the dishes in our family.
Never True A Little True Sometimes True Mostly True Very True

Did you circle one of the responses above? Good job! Please circle only one (1) response for each statement. Answer every statement, even if you are not completely sure of your answer. If you have any questions while you are filling out this form, raise your hand and ask for help. Thank you for helping us learn more about families.

1. We discuss our problems.
Never True A Little True Sometimes True Mostly True Very True

2. Family members make the rules together.
Never True A Little True Sometimes True Mostly True Very True

3. Family members really help and support each other.
Never True A Little True Sometimes True Mostly True Very True

4. Family members criticize each other.
Never True A Little True Sometimes True Mostly True Very True

5. Our family gets together with friends.
Never True A Little True Sometimes True Mostly True Very True

6. It's hard to know what will happen when rules are broken in our family.
Never True A Little True Sometimes True Mostly True Very True

7. We go to movies, sporting events, camping, etc.
Never True A Little True Sometimes True Mostly True Very True

8. Family members discuss family problems and solutions together.
Never True A Little True Sometimes True Mostly True Very True

9. There is strict punishment for breaking rules in our family.
Never True A Little True Sometimes True Mostly True Very True

10. When I need a family member, I know where I can find them.
Never True A Little True Sometimes True Mostly True Very True

11. We fight in our family.
Never True A Little True Sometimes True Mostly True Very True

12. Members of our family can get away with almost anything.
Never True A Little True Sometimes True Mostly True Very True

13. Parents and children in our family discuss together the punishment for breaking the rules.
Never True A Little True Sometimes True Mostly True Very True

14. There is a feeling of togetherness in our family.
Never True A Little True Sometimes True Mostly True Very True

15. Friends come over for dinner or to visit.
Never True A Little True Sometimes True Mostly True Very True

16. Family members participate in a hobby.
Never True A Little True Sometimes True Mostly True Very True

17. Family members get so angry they throw things.
Never True A Little True Sometimes True Mostly True Very True

18. It is hard to know what the rules are in our family because they are always changing.
Never True A Little True Sometimes True Mostly True Very True

19. In our family, it is important for everyone to give their opinion.
Never True A Little True Sometimes True Mostly True Very True

20. Family members are severely punished for anything they do wrong.
Never True A Little True Sometimes True Mostly True Very True

21. Each family member has at least some say in major family decisions.
Never True A Little True Sometimes True Mostly True Very True

22. Our family does things together.
Never True A Little True Sometimes True Mostly True Very True

23. We keep each other informed of our activities in case we are needed.
Never True A Little True Sometimes True Mostly True Very True

24. As a family, we have a large number of friends.
Never True A Little True Sometimes True Mostly True Very True

25. Everyone knows who is in charge in our family.
Never True A Little True Sometimes True Mostly True Very True

26. Family members are involved in recreational activities outside of work or school.
Never True A Little True Sometimes True Mostly True Very True

27. Family members lose their tempers.
Never True A Little True Sometimes True Mostly True Very True

28. Each family member does as they wish without concern about the other members.
Never True A Little True Sometimes True Mostly True Very True

29. Children get punished unfairly.
Never True A Little True Sometimes True Mostly True Very True

30. In our family, parents talk with the children before making important decisions.
Never True A Little True Sometimes True Mostly True Very True

31. Family members avoid contact with each other when in the home.
Never True A Little True Sometimes True Mostly True Very True

32. Our family likes having parties.
Never True A Little True Sometimes True Mostly True Very True

33. Members of the family generally go their own way.
Never True A Little True Sometimes True Mostly True Very True

34. In our family, people get ordered around.
Never True A Little True Sometimes True Mostly True Very True

35. We do activities like playing games together.
Never True A Little True Sometimes True Mostly True Very True

36. Family members hit each other.
Never True A Little True Sometimes True Mostly True Very True

37. We have a daily routine.
Never True A Little True Sometimes True Mostly True Very True

38. Socializing with other people makes my family uncomfortable.
Never True A Little True Sometimes True Mostly True Very True

39. We get along well with each other.
Never True A Little True Sometimes True Mostly True Very True

40. We tell each other about our personal problems.
Never True A Little True Sometimes True Mostly True Very True

SMRFF-CR/SMRFF Items grouped according to subscales used in this study

Conflict:
We fight in our family.
Family members sometimes get so angry they throw things.
Family members lose their tempers.
Family members hit each other.
Family members criticize each other.

Cohesion:
Family members really help and support one another.
There is a feeling of togetherness in our family.
Our family does things together.
Family members avoid contact with each other when at home.
We get along well with each other.
Each family member does as they wish without concern about the other members.
When I need a family member, I know where I can find them.
We keep each other informed of our activities in case we are needed.
Members of the family generally go their own way.

Communication:
We discuss our problems.
Parents and children in our family discuss together the punishment for breaking the rules.
In our family, it is important for everyone to give their opinion.
We tell each other about our personal problems.
Family members make the rules together.
Family members discuss family problems and solutions together.
Each family member has at least some say in major family decisions.
In our family, parents talk with the children before making important decisions.

Family sociability:
Our family gets together with friends.
Friends come over for dinner or to visit.
Socializing with other people makes my family uncomfortable.
As a family, we have a large number of friends.
Our family likes having parties.
We go to movies, sporting events, camping, etc.

Family members participate in a hobby.
Family members are involved in recreational activities outside work or school.
We do activities like play games together.

Appendix G

Parent Consent Letter and Form for Screening

Dear Parent,

[insert name of school here]is teaming up with Kevin Stark, Ph.D. from the University of Texas to evaluate a coping skills training program for girls called ACTION. The ACTION program is designed to teach girls how to manage their emotions and stress, solve problems, and think more positively about themselves. While we believe that all students could benefit from this program, currently, only girls who are experiencing high levels of distress will be able to participate. We are asking for permission from all parents of girls in grades [insert grade numbers of school here] for their daughters to participate in a screening that will help identify girls who are experiencing distress. Girls who participate in the screening will fill out a questionnaire that takes approximately 10 minutes to complete. Doctoral psychology students with appropriate training will supervise the completion of the questionnaires. At this time we do not anticipate any discomfort in completing the ACTION questionnaire.

Girls who report having more than a typical number symptoms of distress will be interviewed about specific symptoms of depression to determine if they are experiencing high levels of distress. The brief symptom interview will be conducted by trained graduate students or project staff under the supervision of Dr. Stark. If a girl in the study is reporting distress on the questionnaire or brief symptom interview, the parents will be contacted by phone to ensure the girl's well-being. ACTION staff or the school counselor may discuss your child's further participation in this research project at that time. For all girls who complete the questionnaire or interview and do not show significant symptoms of distress, parents will receive a letter stating those findings.

The purpose of the project is to determine whether the ACTION coping skills program is more effective than no counseling, and whether parent participation makes the program more effective. In addition, we are trying to learn whether adding follow-up meetings prevents future distress. The benefits to participants include possible participation in the ACTION program and helping advance our understanding of how to best help young girls manage emotions and stress, solve problems and feel better about themselves.

Participation in the project will not cost you anything and there will not be any financial compensation for participation. There are not any risks of harm from completing the questionnaire. There are no anticipated risks from completing the brief symptom interview. In fact, the procedure is designed to quickly identify and assist children who are in distress. All materials and forms will be stored in locked file cabinets in a secure office at UT to protect confidentiality.

If a child reports that she is at risk of hurting herself or others, her parents would be immediately informed and she would immediately talk with her school counselor. In addition, she would be evaluated by one of the consulting psychiatrists at no cost to the family.

If you choose to participate, you or your daughter may stop participation at any time. Participation in the study is entirely voluntary. You are free to say that you do not want to participate by returning this form indicating on the back of this page that you do not want to participate. You can refuse to participate without penalty or loss of benefits to which you and your daughter are otherwise entitled. It will not affect your relationship with your child's school or the University of Texas.

Researchers are required by Texas state law and professional ethics codes to report to Child Protective Services (or other appropriate regulatory agency) all instances of alleged child abuse and neglect. Please note that if your child completes the screening questionnaire or interview and is believed to be at risk for emotional, psychological or possible physical harm or neglect, then the investigator will report this information to the attending physician, Child Protective Services, and any other necessary regulatory agencies. Please note when a child reports neglect or being harmed, participants cannot stop the referral of their child's case to the authorities and any subsequent actions taken.

If you have any questions about the study, you can call Kevin Stark, Ph.D. at (512) 471-0267, your school counselor, or principal.

If you have questions about your rights as a participant, please contact Lisa Leiden, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, (512) 471-8871.

Sincerely,

_____

Researcher's Signature

_____

Principal's Signature

_____

Date

PLEASE KEEP THIS LETTER FOR YOUR RECORDS

Please check the appropriate box indicating that **YES** you have read this letter and are giving permission for your daughter to participate in the ACTION project at your child's school by completing the screening questionnaire and brief symptom interview, or **NO**, you have read this letter and you do not want your daughter to complete the questionnaire or interview. Regardless of your decision, please sign this form and return it to your child's teacher.

PLEASE RETURN THIS FORM TO YOUR CHILD'S SCHOOL WITH YOUR PREFERENCE NOTED BELOW:

_____YES I **give my permission** for my daughter to participate by completing the screening questionnaire and brief symptom interview.

_____NO I **do not give my permission** for my daughter to participate by completing the screening questionnaire or brief symptom interview

_____ _____
Parent's Signature Date

_____
Child's Name (please print)

We will provide feedback for all participants. Please provide information below if your child will be participating.

Parent/adult guardian name(s): _____

Mailing address: _____ City/ZIP:_____

Parent phone number(s) in case we need to reach you with a concern about your child:

Home_____cell_____work_____

Appendix H

Youth Assent Form for Screening

I agree to complete a questionnaire and possibly also an interview about my thoughts, feelings, and behaviors. This questionnaire has been explained to my parent or guardian and he or she has given permission for me to participate. I may decide at any time that I do not wish to participate and that it will be stopped if I say so. My specific responses will not be shared with anyone. However, general information about how I am doing and feeling may be shared with my parent.

When I sign my name to this page I am indicating that I read this page and that I am agreeing to participate.

_____ _____

Your Signature Date

_____

Please Print your Name

Date of Birth _____

Month Day Year

School: _____

Ethnicity:

_____ Hispanic or Latino
_____ Not Hispanic or Latino

Race:

_____ Black/African American
_____ American Indian/Alaska Native
_____ Asian
_____ Native Hawaiian/other Pacific Islander
_____ White
_____ *I do not wish to disclose this information.*

Appendix I

Parent Consent Letter and Form for K-SADS-P IVR

Dear Parent,

Per our contact with you regarding your daughter's responses to the screening questionnaire and brief symptom interview, we are requesting permission for you and your daughter to complete a more comprehensive interview that will help us determine more accurately whether she is experiencing serious emotional concerns or whether she was not feeling well on the days that she completed the questionnaire and brief interview. The interviews will be conducted by trained doctoral psychology students under the supervision of Kevin Stark, Ph.D., licensed psychologist. The interview of your daughter will be completed in a room at school that will protect her privacy. It takes 45 to 90 minutes to complete and asks specific questions about how your daughter is feeling, thinking and behaving and a range of experiences she may have encountered. The interview with you will cover the same topics and can be conducted in person or over the phone if that is preferable, at a time that is convenient for you. Participation in the interview will not cost you anything and there will not be any financial compensation for participation. Completed interviews will be stored in locked file cabinets in a secure office at UT to protect confidentiality. If she is, she may be eligible for participating in the ACTION program. If this wouldn't be the best program for her, we will provide you with possible resources from within the school and the community.

If a child reports that she is at risk of hurting herself or others, her parents would be immediately informed and she would immediately talk to her school counselor. In addition, she would be interviewed by Kevin Stark, Ph.D., a licensed psychologist, or one of the consulting psychiatrists at no cost to the family. If a child reports that she is being hurt, the school's standard procedures for reporting such instances to the relevant state agency would be followed.

The purpose of the project is to determine whether the ACTION coping skills program is helpful, and whether parent participation makes the program more effective. In addition, we are trying to learn whether adding follow-up meetings prevents future distress. If you have any questions about the study, you can call Kevin Stark, Ph.D. at (512) 471-0267 your school counselor, or principal.

If you choose to participate, you or your daughter may stop participation at any time. Participation in the study is entirely voluntary. You are free to say that you do not want to participate by returning this form indicating that you do not want to participate. You can refuse to participate and this decision will not affect your relationship with your child's school or the University of Texas.

Researchers are required by Texas state law and professional ethics codes to report to Child Protective Services (or other appropriate regulatory agency) all instances of alleged child abuse and neglect. Please note that if your child completes the screening questionnaire or interview and is believed to be at risk for emotional, psychological or possible physical harm or neglect, then the investigator will report this information to the attending physician, Child Protective

Services, and any other necessary regulatory agencies. Please note when a child reports neglect or being harmed, participants cannot stop the referral of their child's case to the authorities and any subsequent actions taken.

If you have questions about your rights as a participant, please contact Lisa Leiden, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, (512-471-8871). Let him know that you are enquiring about the study entitled "Helpfulness of the ACTION Coping Skills Program with and Without Parent Participation."

Please check the appropriate box indicating that **YES** you have read this letter and are giving permission for you and your daughter to participate by completing the interview, or **NO** you do not want to complete the interview nor do you want your daughter to complete the interview. Regardless of your decision, please sign this form and return it to your child's teacher. You will be given a copy of this permission letter to keep for your records.

☐ **YES** I give my permission for my daughter and I to participate by completing the interview.

☐ **NO** I do not give my permission for my daughter and I to participate by completing the interview.

Parent's Signature	Date
Researcher's Signature	Date
Principal's Signature	Date

Appendix J

Youth Assent Form for K-SADS-P IVR

I agree to participate in an interview about my thoughts, feelings, and behaviors. It has been explained to me that this interview will help to determine whether the ACTIION counseling program may be helpful for me. This interview has been explained to my parent or guardian and he or she has given permission for me to participate. The interview will be stopped if I say so. Specific things that I say during the interview will not be shared with anyone. However, general information about how I am doing and feeling may be shared with my parent for the sake of talking about what to do to help me.

I will be asked to complete an interview about my current feelings, behaviors, and thoughts. By signing this form I am giving permission for the interview to be audio-taped for the purpose of being sure that the interview was conducted correctly. These tapes will be erased as soon as the ACTION program is completed.

It is okay if I decide to stop my participation in this interview at any time. When I sign my name to this page I am indicating that this page was read to me and that I am agreeing to participate.

_____ _____

Child/Adolescent Signature Date

_____ _____

Staff/Researcher Signature Date

Appendix K

Parent Consent and Youth Assent for Pre-treatment Assessment and Treatment

Dear Parent,

Based on results of the screening and interview that you and your daughter have participated in so far, we are requesting permission for you and your daughter to continue and participate in the evaluation of the ACTION coping skills program. If you give your permission for your daughter to participate, she will be randomly assigned to one of three groups: (1) ACTION coping skills program, (2) ACTION coping skills program plus parent participation, or (3) wait to receive the program in about 12 weeks.

If your daughter is randomly assigned to the ACTION coping skills program, she will meet 20 times over the next twelve to sixteen weeks with a group of girls to participate in a counseling program that is designed to teach her problem solving, coping skills for managing her emotions and stress, and strategies for thinking more positively about herself and things in general.

If your daughter is randomly assigned to the counseling plus parent participation, she will meet 20 times over the next twelve to sixteen weeks with a group of girls to participate in a counseling program that is designed to teach her problem solving, coping skills for managing her emotions and stress, and strategies for thinking more positively about herself and things in general. In addition, you would be asked to attend a total of 10 meetings over this period that will last about an hour and a half. The parent meetings will be held at school after hours and daycare and refreshments will be provided at no expense. During these meetings parents will have a chance to learn the skills that their daughter is learning, and parents will learn strategies for helping their daughter to use the skills.

The girls will meet in a small group during an elective class. Each meeting will last one class period. Steps have already been taken to ensure that she will receive any class materials that she misses. The group meetings will be led by a trained doctoral psychology student or Ph.D. level therapist and a counselor from your daughter's school. The group leaders will be supervised by Kevin Stark, Ph.D. It is not expected that your daughter will experience any discomfort or risks from participating in the ACTION coping skills program. In fact, past experience with the program indicates that the girls enjoy participating and benefit from it.

If your daughter is randomly assigned to wait to receive counseling in about 12 weeks, we will take the following steps to ensure that she is okay. A doctoral psychology student will meet with her each week to monitor how she is doing, she will be discreetly observed in school at lunch or recess for about fifteen minutes per week, and the staff member will check-in with her teacher each week. In addition, every other week, the staff member will check with you to see if you have any concerns. At the end of the waiting period, she will have the opportunity to participate in the coping skills program. If at any point during this waiting period she reports feeling worse or you would like to seek counseling elsewhere, we will provide you with information about community and school resources. You have the option at anytime to seek additional services including consultation with one of the project's consulting psychiatrists at no cost to you.

We will be monitoring each girl's progress and report this information to two psychiatrists who are being paid by us to oversee each child's welfare. If a participant is not improving as a result of the program, then parents will be informed and we will meet with you to discuss other options for providing your daughter with help. If you would like information about medications that might be of assistance, the psychiatrists are available to meet with you and discuss these options at no cost to you.

To determine whether the ACTION coping skills program is helpful, we are asking you and your daughter to complete some questionnaires that help guide, and evaluate the effectiveness of the ACTION program. The questionnaires will take your daughter about one hour to complete. It will take you about 30 minutes to complete your questionnaires. We are asking you to complete the questionnaires so that we can determine whether participation in the ACTION program also benefits you and your family. The questionnaires have been completed by other children and adults without any discomfort. In order to assess the potential benefits of ACTION on school performance, our staff collects the following general education information: grades from reporting periods, attendance, and discipline information for participants.

For one year after completion of the ACTION program, your daughter will have the opportunity to meet with her group and apply the skills to the new problems and stresses that she faces as she grows up and navigates her way through the many difficulties of being a teenager. The groups will meet three times a semester over the rest of the course of the study. In addition, to determine if your daughter needs additional help, once a year, we will ask you and your daughter to complete the interview and the questionnaires to determine whether we have achieved the goal of preventing the difficulties from recurring. Each time in the future that you and your daughter are asked to complete the measures, you will be paid $25.00 and your daughter will be paid $20.00.

If a participant reports at any time that she is feeling like she would like to hurt herself or someone else, then, she would be immediately interviewed by a trained staff member and the school counselor. In addition, if there is concern about a child's safety, the staff member would immediately contact the parents and Kevin Stark, Ph.D. or one of the consulting psychiatrists. If at all possible, the psychiatrist on call would be available to meet with the girl and her parents to further evaluate the situation and to provide you with information about resources from within the community that could be of help. If it is not possible to immediately meet with one of the mental health professionals, then it would be recommended that the child and parents pursue the conventional procedure of driving to the emergency room of a local hospital. If a participant reports that she is being hurt, then the staff member and school counselor would follow the school's standard procedures for reporting such instances to the relevant state agency.

All of the services that we provide are available to you at no cost to your family.

The benefits to you and your daughter are that she may learn skills and strategies that will help her to be happy and healthy throughout adolescence. Similarly, you may learn strategies for helping her to successfully make it through adolescence. The benefit to society is that it will help us to determine whether teaching girls who are experiencing depression these skills helps to reduce the depression and whether it is even more helpful to involve parents. Furthermore, since

girls are at very high risk for becoming depressed between the ages of 13 to 15, the results of this study will help us learn whether there is a procedure for preventing this from occurring.

The ACTION program meetings are audiotaped for quality assurance purposes. To ensure confidentiality, the following steps will be taken: (a) the cassettes will be coded so that no personal identifying information is visible on them; (b) they will be kept in a locked file cabinet in a secure office at UT; (c) they will be reviewed only for research purposes by the relevant research staff; and (d) they will be erased after they are checked and the study has been completed. Identifying information will be removed from all of the assessment materials completed during the study and the materials will be stored in a locked file cabinet in a locked research office at UT.

Participation in the ACTION coping skills program is entirely voluntary. You are free to refuse to be in the study, you are free to discontinue participation for any reason at any time, and your refusal or discontinuation will not influence current or future relationships with The University of Texas at Austin or your child's school district

Researchers are required by Texas state law and professional ethics codes to report to Child Protective Services (or other appropriate regulatory agency) all instances of alleged child abuse and neglect. Please note that if your child is believed to be at risk for emotional, psychological or possible physical harm or neglect, then the investigator will report this information to the attending physician, Child Protective Services, and any other necessary regulatory agencies. Please note when a child reports neglect or being harmed, participants cannot stop the referral of their child's case to the authorities and any subsequent actions taken.

If you have any questions about the study, you can call Kevin Stark, Ph.D. at (512) 471-4407, your school counselor, or principal. You may also contact the project coordinator, Jennifer L. Hargrave, Ph.D., with questions, concerns, or to withdraw from the study at any time at (512) 471-0218.

If you have questions about your rights as a participant, please contact Lisa Leiden, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, (512) 471-8871. Let her know that you are enquiring about the study entitled "Helpfulness of the ACTION Coping Skills Program with and Without Parent Participation."

Please check the appropriate box indicating that **YES** you have read this letter and are giving permission for you and your daughter to participate in the ACTION coping skills program and to complete the questionnaires, or **NO** you do not want to participate in the ACTION coping skills program and you do not want to complete the questionnaires. Regardless of your decision, please sign this form and return it to your child's counselor. With this permission letter, you should have received a copy to keep for your records.

NOTE: TWO COPIES OF THIS LETTER ARE PROVIDED; ONE IS TO KEEP FOR YOUR RECORDS

PLEASE RETURN ONE COPY OF THIS PORTION TO THE SCHOOL COUNSELOR

☐ **YES** I give my permission for my daughter, _____, and me to participate in the ACTION coping skills program and to complete the questionnaires. **This includes permission for ACTION staff to access report card information, discipline referrals, and attendance records during participation.**

☐ **NO** I do not give my permission for my daughter, _____, to continue any further with the ACTION project.

_____ _____

Parent's Signature Date

_____ _____

Kevin D. Stark, Ph.D. Date

*****PLEASE RETURN THIS FORM TO YOUR SCHOOL COUNSELOR*****

Child/Adolescent Assent Form

I agree to participate in a study that is interested in evaluating the relationship between thoughts, feelings, and interpersonal behaviors in children and adolescents. I understand that this study has been explained to my parent or guardian and that he or she has given permission for me to participate. I understand that I may decide at any time that I do not wish to continue this study and that it will be stopped if I say so. Information about what I say and do will not be given to anyone else unless I say so.

I understand that I will be asked to complete an interview about my current feelings, behaviors, and thoughts as well as a number of questionnaires about myself and my family. I understand that by signing this form I am giving permission for the interview to be audio-taped for research purposes and that these tapes will be erased as soon as the study is completed.

I understand that it is all right if I decide to stop my participation in this study at any time. When I sign my name to this page I am indicating that this page was read to me and that I am agreeing to participate in this study. I am indicating that I understand what will be required of me and that I may stop my participation at any time.

_____ _____

Child/Adolescent Signature Date

_____ _____

Staff/Researcher Signature Date

Appendix L

Descriptions of Primary Child Treatment Components and Objectives for Meetings

Meeting #	Primary Child Treatment Component	Objective by Meeting
1	Introductions and discussion of pragmatics	Discuss parameters of meetings, Introduce counselors and participants, Establish rationale for treatment, Discuss confidentiality, Establish group rules, Build group cohesion, Establish within group incentive system
2	Affective education and introduction to coping	Introduce participants to chat time and agenda setting, Establish pragmatics of completing homework, Introduce mood meter and Take ACTION List, Complete within session coping activity
3	Affective education and coping skills	Discuss importance of thinking about meetings and doing practice, Introduce clients to various therapeutic components including: focusing on the positive, affective education, and coping strategies
4	Extend group cohesion, review participant goals, application of coping skills	Extend group cohesion, Review participant goals and strategies, Discuss application of coping strategies, Complete coping skills activity within session
5	Extend coping skills, introduction to problem solving	Experience impact of coping skills activity within session, Introduction, extension and application of problem solving, Introduction to brainstorming step of problem solving

Meeting #	Primary Child Treatment Component	Objective by Meeting
6	Cognition and emotion, introduction to cognitive restructuring	Demonstrate the role of cognition in emotion and behavior, Introduce connection of thoughts to feelings, Enactment of coping skills activity within session
7	Apply problem solving	Apply problem solving to real life situations, Practice brainstorming activity, Experience coping skills activity within session
8	Apply problem solving	Apply problem solving to teasing, Experience coping skills activity within session
9	Apply problem solving	Apply problem solving to interpersonal problems, Experience coping skills activity within session
10	Prepare for cognitive restructuring and introduction to cognitive restructuring	Prepare for cognitive restructuring, Experience coping skills activity within session, Practice cognitive restructuring
11	Cognitive restructuring	Introduce how perceptions are constructed, Illustrate how depression distorts thinking, Provide rationale for changing negative thoughts
12	Cognitive restructuring and Self-Maps	Practice identifying negative thoughts of group members, Introduce client strengths through a Self-Map, Practice cognitive restructuring

Meeting #	Primary Child Treatment Component	Objective by Meeting
13	Cognitive restructuring and Self-Maps	Practice identifying negative thoughts, Continue identifying strengths for the self-maps, Practice cognitive restructuring with questions using alternative interpretations
14	Cognitive restructuring and Self-Maps	Continue identifying negative thoughts, adding strengths to the self-maps, and practicing cognitive restructuring
15	Cognitive restructuring and Self-Maps	Continue identifying negative thoughts and adding strengths to the self-maps, Introduce examining evidence as a tool for cognitive restructuring
16	Cognitive restructuring and Self-Maps	Continue identifying negative thoughts and adding strengths to the self-maps, Practice cognitive restructuring, Prepare for termination
17	Cognitive restructuring and Self-Maps	Continue adding strengths to the self-maps, Integrate and apply cognitive restructuring, Continue preparing for termination
18	Cognitive restructuring and Self-Maps	Continue adding strengths to the self-maps, Integrate and apply all of the learned skills, Continue preparing for termination
19	Cognitive restructuring and Self-Maps	Draw conclusions from self-maps, Empowerment activity for clients to continue using skills on their own, Prepare for group termination
20	Bring it all together and termination activity	Say goodbye to the group, Say goodbye to negative thoughts and feelings, Terminate

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